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THE
DENTAL BRIEF

A MONTHLY JOURNAL OF DENTAL SCIENCE,
ART, AND LITERATURE.

EDITED BY
WILBUR F. LITCH, M. D., D. D. S.
1507 Walnut Street, Philadelphia, Pa.

VOLUME IV.

Published by L. D. CAULK,
Southeast Corner Broad and Chestnut Streets, Philadelphia, Pa., U. S. A.
Western Office, Montgomery Building, Milwaukee, Wis.

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DENTAL BRIEF.

VOL. IV.

JANUARY, 1899.

No. 1.

ORIGINAL COMMUNICATIONS.

OUR RELATIONS WITH OUR AMERICAN CONFRERES LIVING AND PRACTICING ABROAD.*

American dentists practicing in Europe have bitterly complained of the granting of the peculiar American degree to those who are, in foreign countries, considered unqualified. There is no questioning the fact that this has been done in the past. The time once was when foreigners flocked to our shores to complete their dental education by an American course of study, and by the securing of an American degree. This was materially checked by irresponsible institutions which conferred their honors too indiscriminately. The American degree was fast falling into such disrepute that it became necessary to do something, and accordingly this national organization of teachers was formed. I need not enlarge upon its great accomplishments. But unfortunately it was not conceived soon enough. Cause for reproach has already been given, and Europe has not hesitated to take advantage of it to her own benefit and in her own interests, and hence the D.D.S. does not now receive the consideration to which of right it is entitled, nor has sufficient credit been accorded to the work of this association. It takes a long time to live down the bad reputation that may be gained in a day.

Two things are charged by American dentists practicing in Europe:

First that students from the old countries are received by our schools and given advanced standing on the presentation of certificates in foreign tongues which are really worthy no consideration.

Second, that diplomas are practically sold by American institutions, and degrees conferred *in absentia*.

* Report of the Committee on Foreign Relations of the National Association of Dental Faculties.

There is, unfortunately, no disputing the fact that our confreres abroad have sometimes had cause for complaint that the value of their diplomas has been depreciated, and that they have not been sufficiently protected by the schools granting them. Ever since the organization of this association of colleges, its rules governing the admission of students have been violated on different occasions, through ignorance of the value of some of the certificates which the regulations have made necessary for advanced standing. It is also more than probable that worthless, and even fraudulent certificates, have sometimes been used as pretexts for giving advanced standing in certain American colleges, when their real character should have been well known by the authorities. A foreigner who desires an American degree, and who occupies but a low social position at home, procures a certificate from some unqualified source, perhaps under false representations. It is written in a foreign tongue and sealed with some pretentious seal, possibly that of an emigration or other bureau. This he presents to the American college, assuring the authorities that it represents a definite course of dental study. The dean is perhaps unable or indisposed to have it verified, and it is accepted, the applicant under it is admitted to the senior course and graduated at the end of a single term. Thus, after an absence of but a few months, the student, perhaps a servant or a barber's apprentice who had become possessed of a little money, returns to his native land and flourishes in the faces of his former associates a diploma that should be the distinguishing characteristic of an educated man, and claims to be the confrere of those who have honestly earned a certificate of fitness from an American school, and upon whose diploma this unmerited scandal and disgrace has thus been brought.

It is possible that the institution thus offending may have been nothing more than careless. It would take weeks to verify the certificate presented, and then it would be too late for entrance. There are no means at hand by which the value of the document can be ascertained, and so the applicant is given the benefit of the doubt and admitted to advanced standing.

Formal complaint was last year made by American dentists in Switzerland in the case of a man named Stauber, who was admitted to the senior class of a college having membership in this body. He had been permitted to join upon the presentation of a foreign certificate. Culpable negligence seemed to have been exercised, and had it not been for the energetic protest of our confreres abroad the student would have been graduated at

the end of a few months. Upon the presentation of the case the college reduced Stauber to the Freshman class, and he must wait for his diploma. It is further charged that he was matriculated when not in this country, the date of the closing of the time for registration having expired before his arrival in America. Such cases as this should be closely investigated, that the offending college may be punished if guilty, or exonerated if innocent.

It has appeared impossible in many instances to determine the character of the certificates presented. The foreign school, or pretended school, is unknown here. We have no list of such, and great injustice might be done to applicants if the document is refused, provided it be genuine and sufficient. But it is quite proper for every college to insist upon the endorsement of some known authority. If, as it now is, the authorities are conscientious and ask for a verification of the document presented, the prospective student perhaps brings a countryman who is suborned to give a false interpretation of it. Or he goes to a rival school, representing that the first to which he applied, and which calls for the additional testimony, had accepted him, but that he had found the college to be inferior to its neighbor, and so he wishes to transfer his matriculation to a better one. That appeals to more than one perverted sense, and he is accepted on his mere assertion, skilfully made, that the document had been approved by the other institution, and is given advanced standing.

As for the determination of preliminary qualifications, that is a yet more difficult affair. The systems of general education in different countries are so diverse that it is almost an impossibility to decide what may be accepted as the equivalent for the standard of the National Association of Dental Faculties. And so the reception of students from abroad is that which the most conscientious dean may be at fault.

This condition of affairs has long existed. It forms the basis for many bitter complaints on the part of both foreign and American dentists practicing abroad. It very loudly calls for reform. The good name and reputation of this association is concerned, and we are in honor bound to seek some remedy.

The communications from abroad that have been referred to this committee suggest that a board of European dentists should be appointed by this body, who shall take cognizance of such cases, and whose endorsement of the status of a proposed student shall be necessary for his matriculation in any recognized college. To give to such a foreign and irresponsible board plenary powers in the acceptance of applicants for matriculation from

abroad is, of course, quite impossible. We have no legal or moral right to delegate the authority that has been by law vested in the responsible faculties of our colleges. In some of the States the determination of the qualification is vested in State authorities, and they could not and would not delegate it to any board whatever. In the State of New York the college officers have nothing to do with the determination of the preliminary qualifications of applicants. They must obtain from the State regents a dental student's certificate before they can be accepted.

But your committee can see no objection to the naming of an advisory board, whose endorsement of any paper and whose certificate of educational and moral status may be considered sufficient, and it therefore recommends that three qualified persons, resident in each of the principal countries of Europe, be appointed as an advisory board, to whom students from abroad may present their certificates of qualification and moral character for endorsement, or to whom the papers of students from abroad concerning which there is doubt or uncertainty, may be referred for authentication and approval. Your committee was advised that this matter would be brought before the American Dental Society of Europe, at its meeting in London, August 1st, and that the chairman would be apprised of any action there taken.*

DENTISTRY IN AMERICA AND EUROPE.†

Your committee recommends the adoption of the following resolutions:

First: *Resolved*, That a Standing Committee of five be appointed each year by the President of this Association, to be called the Committee on Foreign Relations, whose duty it shall be to report each year upon the relative status of dentistry in America and Europe, and to suggest any measures that, in the opinion of its members, will promote the welfare of our common profession, and the usefulness of the distinctive American dental degree.

Second: *Resolved*, That the Committee on Foreign Relations be instructed to use its utmost diligence in ferreting out fraudulent or irregular colleges, and the granting of degrees

* Since this report was presented and adopted the chairman of the committee has received an abstract of the proceedings, in which was recommended the very action taken by the National Association of Dental Faculties at its late annual meeting.

† Report of the Committee on Foreign Relations of the National Association of Dental Faculties.

irregularly by recognized colleges, should this be done, and to leave undone nothing within their power to bring to justice institutions granting irregular degrees, or degrees irregularly. To this end this association authorizes the committee to expend any reasonable sum of money, which, if necessary, shall be raised by some fair assessment of the colleges of this association.

Third: *Resolved*, That an Advisory Board, to consist of not more than three qualified persons from each of the following-named countries of Europe be appointed by this association, to the member or members of which the papers of any foreign applicant for matriculation in any American dental college shall be referred for verification or endorsement, it being understood that such papers shall be referred to the member or members of the board appointed for the country of which the applicant is or has last been a resident. The countries to be represented shall be: (1) Great Britain, (2) Holland and Belgium, (3) Denmark, Norway and Sweden, (4) Russia, (5) Germany, (6) Austria and Hungary, (7) Italy and Greece, (8) France, (9) Spain and Portugal, (10) Switzerland and Turkey.

W. C. BARRETT,
S. H. GUILFORD,
D. J. McMILLAN,
F. D. WEISSE,
A. H. FULLER,

Committee.

The resolutions were unanimously adopted and the committee continued as "The Standing Committee on Foreign Relations," J. D. Paterson being appointed in place of D. J. McMillan, elected President of the Association.

The committee was authorized to appoint the Foreign Advisory Board.

It earnestly invites the coöperation of American dentists at home and abroad. Letters should be addressed to W. C. Barrett, Chairman, 208 Franklin street, Buffalo, N. Y., U. S. A.

It is seldom we can with safety take rules for success from an unsuccessful person, or instruction from a mere theorist, or lessons of skill from a blunderer. It is when we see marvelous results that we become anxious to know the road that leads to them; it is when we see theory reduced to the world's improvement that we become interested in what a man says.

ANESTHESIA BY RAPID BREATHING.

Dr. W. G. A. Bonwill, Philadelphia.

It is diversion of the will power, for when the lungs are being inflated violently, the will cannot take cognizance of actual pain. It is for the instant complete. Let any of you hurt a finger and how soon it is put in the mouth and a violent inhalation taken several times until pain is relieved. The infant is crying violently, while in pain from an accident, is relieved and falls to sleep from the constant sobbing and increased respiration. All temporary teeth I extract by this one sudden inhalation or diversion of the will, without a tear nor complaint. Two or three can be extracted while the breath is held in the lungs.

This led to the discovery that rapid breathing for sixty to ninety seconds, at the rate of 100 to the minute, would produce such an obtundity of the nerves and nerve centers that analgesia would be produced and the patient still be conscious of touch. This enabled me to perform all excavating—extracting both teeth and the bony pulp, as well as all minor operations in surgery. A single respiration quickly taken and the breath held in the lungs will suffice for many trifling operations and all that is needed in extracting the temporary and permanent teeth of children. This was the birth of analgesia, in 1856, as proven upon my own person while operating upon myself.

This property of all anesthetics is very little known by medical men, and they have missed a very important part of anesthesia. Analgesia should be better understood and the application of rapid respiration would come into use in thousands of minor operations where the custom is to completely anesthetize the subject. Let surgeons and dentists learn how to produce this effect, and ether, chloroform and gas would no longer be used in three-fourths of the cases. In midwifery it is all that is desirable.

Let any one imagine that they are blowing a fire to make it blaze, taking full inhalations and forcibly ejecting or blowing, which can be done at least 100 times a minute, and while the patient is doing this the operator should talk to him, say no pain will be produced, and urging him to breathe in this manner until sixty seconds have passed, when the patient can not feel any pain, as the voluntary system is subdued. The pneumogastric nerve now says, you can not go on as life would become extinct. For the next three minutes the respiration is only about six to the min-

ute, showing the blood has been over-oxygenated. The patient has to be urged to breathe. When this is done previous to using ether or chloroform only one-half the quantity is used, the effect is more profound, and there is not as much danger. Since this discovery of the rapid breathing method, in 1872, although analgesia was discovered by me in 1856, and was the stepping-stone thereto, I have used no other means of painless surgery in dentistry.

Cataphoresis is not a fact as applied to sensitive dentine, and should have no place in dentistry.

DR. S. L. EDWARDS DEAD.

Dr. Surry L. Edwards, the veteran dentist, died recently, at his home in Des Moines, Iowa.

Dr. Edwards had been ailing for several months, but was confined to the house only two weeks. He was 71 years of age last March, was born in Gilford, Vt., and had lived in Des Moines since 1874. He leaves several sons, the eldest, Horace N., being associated with him in dental practice. Joseph A. is with the Fifty-first Iowa volunteers, now en route to Manila; Newton O. and Benjamin S. are in the city, recently mustered out of the Fifty-second regiment. Mrs. T. E. Carter, of Girard, Ill., sister of the deceased, was at the bedside. There are two daughters, Mary A. and Esther E.

Dr. Edwards entered the McKendree College in 1847, and graduated. He taught public schools for five years, and then began the study of dentistry, entering practice of that profession in Griggsville, where he was married in 1855, to Emma A. Dickinson. Dr. Edwards was a member and an officer of the First M. E. Church for many years. He assisted in the formation of the church, and had ever been an active, conscientious worker for its upbuilding. Although a man of retiring disposition, and one who took no part in public affairs, he was always a close observer of the progress of the city and of all things looking to a betterment of society.

This is courage indeed: to look into a dull future and smile; to stay bound and not chafe under the cords; to endure pain and keep the cheer of health; to see hopes fade and die out, and not sink into brutish despair—here is courage before which we may pause with reverence and admiration.

Munger.

CURRENT THOUGHTS.

THE FIRST MEETING WITH PATIENTS.*

Dwight M. Clapp, D.M.D.

MR. PRESIDENT AND FELLOW-MEMBERS OF THE HARVARD DENTAL ALUMNI:—Our friend, Joe Jefferson, gave an informal talk at the University Club not long ago, during which he was asked which he considered the more difficult to act, tragedy or comedy. He said he did not think he could answer the question better than to repeat the reply of a late English actor when asked the same question. He said, in substance, "Let me be never so weary and out of sorts, I can pull myself together enough to act tragedy at my best; but comedy—ah, that is a serious business!"

To me it is a serious business to stand before so many Harvard men and talk about the first meeting with patients.

In 1868 or 1869 I had several large gold fillings put into my superior bicuspid by one of the brightest Boston operators of that time, a brilliant mechanic, but lacking in anatomical and collateral knowledge, such as is offered the students of the Harvard Dental School to-day. As a result, the pulps of these teeth were not properly protected, and much trouble followed.

While living in Geneva, in 1870, one or more of these teeth died. It may have been the result of the shock caused by the declaration of war between France and Germany, but I always laid it to too close proximity of the fillings to the nerves of the teeth. I treated them myself as best I could, and some time afterwards the late Dr. Moffatt, whom many of us older ones remember with peculiar affection, treated one by piercing the alveolus at the point of the root.

With very slight interruptions, these four dead bicuspid have been perfectly comfortable for more than a quarter of a century, and are now doing perfect service, reinforced by gold caps. Naturally I have great respect for some so-called dead teeth, and these in particular.

Dreaming the other night, I seemed to experience a stab of pain in the alveolar region about these teeth. It gradually increased. There was heat, and the thumping throb preceding the abscess stage. Surely I must see a dentist.

* Read before the Harvard Dental Alumni, "Alumni Day," June 27th, 1898.

Morning seemed to dawn. Shortly I was approaching the office-door of the village dentist. I noticed that the paint was dingy, a blind at the window hung by one hinge, and the corners of the steps were packed with accumulated dust and dirt. I opened the door, my heart seeming to occupy a greater portion of my mouth than did my teeth. One glance photographed the entire office on my mind. There was a hole in the carpet, the covering of the chair was ragged, the operating-case was strewn with dirty instruments, and a glass, partly filled with water, bore on its rim the blood-marked curve of the lips of the previous victim.

And my nose, it was besieged with the fumes of last night's pipe and cigar smoke, shaded down with the perfume arising from the belligerent bacteria inhabiting the cuspidor.

I was startled by a not over-gentle salutation—"Well, how are you?" "Can you tell me," I meekly asked, "if the doctor is in?" "Yes, I'm him. What's the matter with you?" I began telling him my troubles. "Oh, dead teeth, is it? Yer can't do nothin' with 'em. The only thing is to pull 'em out, and have in one of my plates adjusted to heat and cold. Got 'em fixed now with my new process, so that they are just as good whether the mercury is down to zero or whether she's a stickin' right up through the top of the glass. Great thing, I tell you!"

"But," I suggested, "these teeth have been dead a long time, and have not troubled me." "Troublin' you now, ain't they? I tell you there can't be nothin' done for dead teeth but to pull 'em out. Never was one but would have been better out than in. You better set up here and let me yank 'em right out, and have it over with. You never will get no comfort until you have one of my plates, adjusted to heat and cold."

Just then the pugilistic bacteria got in another round, and I mustered up sufficient courage to feebly say that I thought I would try them until afternoon, and if they were no better then, I might have them out. As I stepped out, half expecting to be forced back by some invisible power, I heard, as the door closed behind me, "Nothin' like that plate of mine, perfectly adjusted to heat and cold."

On reaching the street, I was reminded by another twinge that my troubles were not over. "Why not consult Dr. Hifalutin?" some one suggested, so I at once sought his office. On being ushered into the doctor's presence, I gave him a history of my troubles. He listened in grave silence, and, as I proceeded

I could see that he considered my case a desperate one, and that he must brace himself, so to speak, in order to do it full justice.

After I had finished the details, he majestically waved me towards the operating-chair, and said if I would be seated he would try to ascertain, by concise observation, if the condition of the affected parts gave pathological evidence corresponding to the train of symptoms I had narrated.

As he raised my lip and caught sight of my teeth and gums, his face darkened, and I could see that he considered the situation exceedingly complicated. "Yes," he said, "I fear the organs have lost their vitality; sometimes, however, great pain is exhibited in the bicuspid region when there is really no lesion there, the real cause being located in some one of the dentes sapientiæ. In your case, the appearance of the gingival borders would indicate stasis. The alveolar ridges may have become denticulated from the inflammatory action, causing the hypertrophy of the membranes and great preponderance of the circulatory fluids. Sometimes these cases, if not properly diagnosed and skilfully treated, lead to the most serious results. I had a case, the other day, that started from the same cause as this, where the osseous tissues involved included not only the alveolar plates, external and internal, the maxillary bone, and the superior and inferior turbinate, but also, I suspected, a slight affection of the extreme end of the nasal. These teeth had been deprived of their central nutritive organs only twenty-six and a half years, instead of twenty-eight, as yours have. The effect on the soft tissues was much more apparent to ocular interpretation. The mucous and submucous membranes were much distended. The masseter, external and internal pterygoid muscles were somewhat rigid, the stylo- and hyo-glossus more or less constricted, while the condition of the orbicularis oris and the levator labii superioris alæque nasi was such as to give a most strained and interesting appearance, from a purely scientific view, to the mouth on that side."

Cold perspiration was beginning to start from every pore.

"It is exceedingly fortunate for you that you came to some one able to diagnose and scientifically treat such a rare and complicated pathological condition.

"It will be necessary, I fear," he continued, "to trephine the external alveolar plate over the buccal root of the first bicuspid, curette the tract of suppuration, and insert a canula to insure perfect drainage for the broken-down and disorganized products of decomposition during the process of granulation and repair."

Drawing a long breath, and pulling myself together as best I could, I managed to faintly articulate that, if what he had said should strike my cerebrum with sufficient force to wake it up, and if the result should be a differentiation of his diagnosis and his prognosis, and if my medulla oblongata should insist upon it, I would return in the post-meridian to be operated upon.

Again I found myself in the street, discouraged and at a loss which way to turn for help. Suddenly raising my eyes to an attractive house, I saw, in modest letters, the name John Smith, D.M.D. I was filled with hope at once. Surely, John Smith, D.M.D., must be able to aid me. Without hesitation I entered his neat apartment. Here, as at the other places, the whole surroundings were stamped on my mind in an instant. There was no display of wealth, but neatness and artistic harmony everywhere. It was homelike; there were no guillotines hanging from the windows or ceiling; no electrocuting appliances boldly displayed. There was no show of steel to further excite my already high-strung nerves, and no smell of ether to suggest that I must take an anæsthetic, or carbolic to indicate the sterilizing of scalpels and gouges. Everything was just nice.

A cheery voice said, "Good morning." Turning, I saw a gentleman. Gentleman was stamped on form, feature and bearing.

I again told my story, this time into a willing and sympathetic ear. The interested, thoughtful, and pleasant face of the doctor invited confidence. "Surely," he said, "teeth that have served you so long and well shall have our best efforts to keep and preserve them useful for a long time yet."

With a snow-white napkin and dainty fingers he lifted my lip to make the examination. With great care and minuteness he noted every feature of the case.

"I do not think we need expect any serious trouble," he said. "There has been some disturbance of the circulation about these teeth, but I hope it will be of short duration. I will make an application calculated to allay the inflammation, and you may hold cold water in your mouth or apply ice to your face to keep the blood away from the part as much as possible. If this fails, after a few hours' trial, you must come back. There are many other things I can do to promote a speedy return to health."

My fears allayed, there was immediately a lessening of the blood tension, and an improved condition which always follows

when one has had an interview with his physician, in whose skill and honesty he has entire confidence.

I awoke with the feeling that I had found a dentist in whose hands I could safely trust my teeth; one whom it would be a satisfaction to have as my confidential dental physician, and a worthy associate wherever we might chance to meet.

International.

NATURE'S METHODS OF DEFENSE.

L. P. Bethel, Kent, O.

Throughout the life of all organic bodies there is constant warfare; foe attacks foe; a continual battle for existence.

Man, animals and other complex organic bodies are made up of a multiplicity of cells; millions upon millions of these minute particles of living matter uniting to form the whole. Each cell has a life of its own to live, and when it dies it is removed and another is ready to take its place. Thus organic bodies are ever changing. One organ of the body seems constantly trying to outdo some other organ, and, indeed, it would seem that even among cells of the same kind there is not mutual aid, but perpetual strife. Every part that increases, determines the enfeeblement of other parts. The stronger cell attacks the older and weaker cells, and, like the Hottentots, kill off the parents when their usefulness is spent.

Bichat said, "Life is the sum of the functions which resist death." We might represent it as being made up of two principal forces: First, that of building up the organism during the period of growth, and keeping up the repair during middle life and declining years. Second, a resisting force that stands guard ever watchful to keep the system in order, and always ready to resist the attacks of invaders from without.

We have referred only incidentally to the first, for the second is the one about which we desire more particularly to speak. Every growth has its foes, and the higher we go in the scale of life the more there is with which the organism has to contend. The resistive force, however, is stronger in some species than in others. Certain plants and trees exhale particular odors or excrete juices that are antiseptic and destroy the parasites that attack them. Although this resistive force is present in all forms of organic life, it is complete in animals and man.

Man is provided with muscular strength to defend himself against visible things, but it is through the wise provisions of

nature that he is enabled to withstand the attacks of invisible foes, such as pathogenic or disease-producing germs.

It is interesting to trace the methods of defense with which nature has endowed man, and by way of illustration we will presuppose the presence of disease-producing bacteria seeking entrance to the human body. Let it first be understood, however, that bacteria are vegetable organisms and not animal. They do not fly nor run; they simply grow on favorable soil as a plant would grow.

Being so minute, every disturbance of air will lift them into the atmosphere, and they find lodgment on everything. The dust of our streets is laden with germs, and they abound in profusion in places where sanitary conditions are not good. This points out the necessity for good ventilation, keeping our apartments well aired and bathed in sunshine, for sunlight is one of the best of disinfectants. Bacteria find lodgment on our clothes, skin, hair, and we are constantly breathing them. Researches of Professor Thompson showed that under the most favorable conditions, the lowest number of organisms contained in the inhaled air of an hour, was fifteen hundred; and that in a large city the air that passed through the nose in the same length of time was charged with from fifteen to sixteen thousand. Many times even a greater number are present. The fate of the thousands of microbes which thus enter the human body is a question of great pathologic interest, and this increases when it is remembered that expired air is practically free from germs. Fortunately they are not all pathogenic organisms, but they are all invisible to the naked eye; and the pathogenic are intermingled with the non-pathogenic germs, so man cannot select air that is free from them. Here nature steps to the rescue and provides first a nose that is turning downward. Bacteria being heavier than air, they are constantly falling, and in consequence fewer are inhaled than would be the case if the nose turned upward and served as a "catch all." But this is not the only precaution against their invasion. When bacteria are inhaled they meet resistive force in the nostrils. First, the vibrissæ, or hairs in the nose, arrest many of the inhaled germs. Others are caught by the mucus and carried out of the nose. The nasal mucus being somewhat antiseptic, the surface it covers is rendered non-suitable for the growth of germs. Then, the cilia of the epithelium are active in ejecting the invaders. We might say, then, that the nose acts as a germ and dust filter, arresting these minute particles before they reach the trachea or bronchi.

The mouth breather runs more risk, for the inhaled germs are carried immediately to various parts of the mouth and throat, the pharyngeal wall and tonsils being favorite locations for development and growth of diphtheria-producing and some other bacteria. Hence the dentist should breathe through his nose, especially when burring out tooth cavities and inhaling the dust.

When we disobey the laws of nature, we take the risk in our own hands. "Keep your mouth shut and save your life," is prudent advice. Yet, in the healthy individual, the germs inhaled or taken into the mouth with food and water, meet immediate opposition. The saliva and mucus in the mouth and throat catch them, and they are carried into the stomach to be put to death by the gastric secretions. If any survive this, they are carried by the cilia along the intestinal tract and are eliminated. Should they lodge in the bronchi, they are arrested by the secretions and borne away by the cilia.

The saliva and mucus, in normal condition, are somewhat antiseptic, and prevent development of many germs. Yet some do thrive in the mouth, but so long as the tissues are normal, their secreted juices protect them from bacterial attacks. Should bacteria attempt entrance by way of the ear, they are arrested by the epidermis and the secreted wax. If by the eyes, the secretions carry them away. If they are on the skin, they find a barrier in the cells of the epidermis, for there is a continual scaling off of this membrane, and adherent bacteria are carried with the scales. Then there are the glands of the skin, throwing out sweat and oily materials that arrest or carry away the bacteria, even though they succeed in penetrating the glands. Here is a plea for cleanliness; for when we bathe, this army of microbes are washed away and the glands are freed from extraneous matter clogging their mouths, and stimulated to renew action.

Sometimes bacteria get to the internal tissues through a hair follicle or minute opening in the skin, but still all is not overcome for internal resistance is here encountered. The juices of the body are highly antiseptic, and promptly kill or weaken the vitality of the microbes. Now, suppose they withstand all this and succeed in getting into the blood circulation, still they find opposition. In the blood are wandering cells, white blood corpuscles, or phagocytes, that, like some policemen, keep vigilant watch, and appear on the spot when the invaders break in, and attempt their immediate arrest. These phagocytes are not so numerous as red blood corpuscles, the red predominating in the proportion of four hundred to one. But when the internal tissues

are threatened, the white corpuscles rapidly increase in numbers. They differ from the disk-like red corpuscles, being composed of a plastic protoplasm, which enables them to assume various shapes, and to slip into the smallest intercellular spaces. When a bacterial invader reaches the interior of a blood-vessel, it is immediately approached by one of these wandering cells. Phagocytes being of various shapes, it is hard to describe their appearance, but we will liken them to a star-fish. The arm-like processes, or pseudo-pods, as they are termed, branch from all sides of the cell, and, when approaching a bacterium, those nearest the microbe extend out on either side, surround and envelope it. Thus the germ is evacuated, and then digested by the phagocyte. Should bacteria be able to resist the attack of these phagocytes, or devouring cells, still they meet opposition. The blood serum is highly antiseptic, and thus has microbe-killing properties, and the oxygen taken into the circulation is fatal to many species of bacteria, as carbonic acid is to others. But these phagocytes are not confined to the blood-vessels; they have the power to migrate from one tissue to another, and their usefulness is thus enhanced. The medical term for this migratory process is "diapedesis." (Of course it is necessary for physicians always to talk Greek.)

Now, this is the way the human body in a state of good health, defends itself against bacterial attacks, but let the vitality of the system become lowered, through debility or other causes, and it loses some of its resistive power. It is in this abnormal state of the constitution that disease-producing bacteria find it possible to develop within the organism, and cause disease by multiplying and excreting toxins that poison not only the tissues on which the bacteria grow, but distant portions of the body, for these poisonous alkaloids are taken into the circulation and are carried throughout the system. Phagocytes are quite susceptible to the action of bacterial toxins, and are weakened or killed by them.

Sometimes a bruise or cut will bring about serious results. Suppose a finger or hand is cut or pricked with a knife, pin, excavator, or any sharp instrument on which there are disease-producing bacteria. These germs are carried into the tissues, and inflammation results. The tissues become abnormal, and the bacteria, not meeting the natural resistance, are able to multiply. Phagocytes hurry to the place of irritation, and a battle ensues. The microbes multiply rapidly, and their excreted toxins act on the phagocytes, killing some and weakening others.

The phagocytes pass through the vessel wall, and the bodies of those killed go to form pus. If the bacteria can resist the attack of phagocytes, and so vitiate the tissues as to be able to grow and multiply there, their excreted toxins gradually act on the surrounding parts, and if not checked or limited in their action, they cause blood-poisoning.

But where there is perfect health, disease will not occur, and as fresh air, plenty of exercise, frequent bathing, regularity in eating and sleeping, are all essential to good health, we can ill afford to neglect these important duties. Just so long as we observe the laws of health, we are doing our best to keep out disease.

Ohio Journal.

ARTIFICIAL DENTURES IN THEIR RELATION TO THE SPEAKING OR THE SINGING VOICE.*

Dwight L. Hubbard, M.D., New York.

To the crowning glory of the handiwork of the Creator is given that which none of the lower animals possesses—viz., a power to express thought and a soul which finds a medium in articulate sounds. The Giver of this faculty gave to other creatures the same power in less degree; to some the intelligible manifestation of fear, pain, anger, and other emotions; to each according to its necessity. But to the greatest of His creatures He gave not only the power of expressing emotion by sign or articulate sound, but the power of original and logical thought in speech and song. In order, therefore, to treat this subject intelligently it may be well to indulge ourselves in a short consideration of comparative anatomy. Every bird, every animal, is endowed with a voice according to its need. To some it is given for self-protection, for the acquirement of food, for the warning of impending danger; to others, of a higher type, for pleasure, for companionship, and for ministration to man and the glory of the Creator. Each and every one according to the necessity of its environment.

The beautiful song of the nightingale has its use in innocent glorification as well as in a contribution to poetic æstheticism. Let us look at the subject from a mechanical standpoint. It is very pleasant to dwell upon higher and æsthetic things, but serious business calls us from the realms of the beautiful, and reminds us that man lives by bread, but does not live by bread alone.

*Read before the Northeastern Dental Association, held at Hartford, Conn., October 19th and 20th, 1898.

The voice is the highest type of mechanism in acoustics.

The squirrel, chipmonk, and others of the same family have voices sharp and shrill, but there is no resonance. They have flattened heads and a very few resonance-chambers. The jack-ass (pardon me for so commonplace a reference) has a resonance capable of disturbing the peace of solitary dwelling-places or the minds of adjoining neighbors, either of his own kind or of a higher order. He has a large head when compared with his body. He has wide and large nasal cavities. He has a "large" voice with great carrying quality. The crow has a voice in quality and timbre far from musical, and represents a type of the "throaty" voice. The bird has a flattened head and no resonance-chambers. The canary has a voice of great sweetness and resonance. He has a high forehead and a comparatively enormous frontal sinus. The parrot has a voice of penetrating and carrying quality, and in accordance it will be observed that his beak is altogether in harmony with his vocal resonance, giving a remarkable variation almost human. Observe the resonance-chambers of the owl, and go to his haunts and be charmed by his music. The high and wide resonance-chambers of the lark have justly earned for him poetic tributes. H. H. Boyesen thus writes:

"The bird is to him but a winged symbol of divine unrest. The lark has caught the key-note of the poet's song and loses its earthly individuality."

Take exception, if you will, in the case of the bullfrog, but look at the air-pouch in his white throat. It is out of all proportion to the size of his head. His deep diapason may put to shame the attempts of a contrabasso.

So in man, resonance-chambers are a necessity to good voice-production. The high forehead with its frontal sinus, the porous bones of the upper face, honey-combed with cells, the thirty-six square inches of nasal space, the vaulted dome of the naso-pharynx, all lend resonance to the thought medium. The anatomical construction of the face and head should not be forgotten.

It should be borne in mind that hyperplastic inflammation of the lymphatic glands of the pharyngeal, laryngeal, and cervical regions is liable to take place as the result of disturbances in the teeth and also in contiguous structures. Neither should the extension of possible inflammation to the sinuses be neglected. The relationship of these cavities to the parts named is very intimate. We have only a thin mucous membrane covering the

palatal foramen, and a direct communication with the antrum of Highmore with the nasal cavity. These are in intimate association with the oral cavity. So with the other sinuses, the frontal connecting with the nasal cavity by means of the infundibulum, as pointed out particularly by Dr. Fillebrown; the ethmoidal cells in direct communication with the nasal chambers and the sphenoidal sinus, very liable to disease from extending catarrhal affections; all of which may be caused by tooth-disturbances. I speak of these only because they have a direct bearing upon voice-production, and to particularly fix a partial responsibility upon those whose business it is to look after primary causes.

In order to prove that vibration of the air in the nasal cavity takes place during phonation, place a vulcanized rubber splint of small size in the nostril, and upon phonation the singing quality and the vibration will be plainly felt. To demonstrate that a part of this vibration is communicated through the palatal bones and foramen, hold against the hard palate a sufficiently large piece of wax, and the diminution in the nasal and head vibration will be very noticeable. I wish merely to show that artificial appliances in the roof of the mouth are hindrances to proper phonation, and that some attention should be given to the avoidance of such possibilities. Aside from the soul of music in the singer, everything depends upon the tone-placement. No obstruction, no matter how slight, should be placed in the way, whether it be an obturator, a plate, or a simple filling, unless necessary. When necessary, due attention should be given to the best tone-producer, whether it be required for grand opera, the rostrum, or common conversation. As the crowning work man stands unique in that he must learn the art of speech and song; but is not this a tribute to his greater intelligence? How much more, then, should he seek to acquire perfectness in this one of the highest gifts.

What relation have artificial dentures to these cavities? When a violin string becomes "fuzzy" the tone is muffled. It no longer gives forth a clear note. Puncture a brass instrument and solder it with lead, and its clarion notes lose their clearness. Place an iron weight upon the sounding-board of a piano, and it ceases to give forth the harmonies of the mind of its master. The human vocal instrument can no more tolerate these obstructions than can those used in the illustrations.

I will not refer to pathological conditions nor enter into a discussion of them, except as they place hindrances in the way of clear voice-production, and the necessity for their recognition

in the fitting of dentures and of dental operations in general. Apropos to what has already been said, let us take as our first principle that the resonance-chambers must be free from all obstruction. By resonance-chambers I refer to all the cavities of the face, including the nasal and naso-pharyngeal spaces and the oral cavity. The last is not least in importance.

Teachers of elocution and singing-masters lay particular stress upon "tone-placement." By this is meant such a focussing of sound-waves that the air in the spaces referred to may be made to vibrate the most readily. This gives carrying power to the voice. In other words, the air of an auditorium can be made to vibrate only when the vibration is started in the vocal mechanism. The vocal cords simply act as the initial mechanism of the tone, the resonance-chambers being really the tone-producers. Vocal cords alone are nothing more than a violin-string without the body of the violin. The choicest place for focussing sound-waves seems to be in the palatal arch, its exact location varying in different individuals, according to the shape of the arch and the size and relative positions of the different sinuses. The palatal arch is a most interesting locality to the dentist. At this point a good or bad denture may retain, make, or mar the tone, quality and timbre. It is a self-evident fact, then, that perfect fitting and perfect finish are of great importance. Second, it is of no less importance that we should consider the quality of material used as also the material itself. It follows that as little interference as possible to the conduction of sound should be placed in the way. The focus of vibration at the point mentioned is largely instrumental in communicating sympathetic vibration to the nasal cavity. For perfect fitting you, of the dental profession, must be depended upon, for with reference to this I cannot speak with authority. As to the material to be used I have but little to say, but that little will be from experience. We know that vulcanized rubber is almost as poor a conductor of sound as it is of electricity. We know that porosity hinders the conduction of sound, and that density increases it. The metals whose chief characteristic is that of fibrous density are the best conductors. But it is sometimes easy to do our work too well. Suppose we could use a plate of steel. We would thus overdo the work and get too much of the metallic conduction out of all proportion to the capacity of the resonance-chambers. Then we must look for a happy medium which will be proportionate in their capacity. The material must be neither too soft nor too dense. Its density must be varied according to the individual case, other necessary

things being also considered as a matter of course. You have reached such a stage of perfection in the management of gold that it is now a comparatively easy thing to obtain the proper and desired density appropriate to each case. But with any metal as a "back" it seems to me that a modifier should be used in combination with it. To sum up this part of my subject it would seem that a vulcanite plate of perfect finish, as dense as possible, backed with gold of proper density would be an ideal plate.

The same principles should be observed with regard to artificial teeth and fillings. It may be asked if the teeth have anything to do with resonance. In answer, and to prove that they most decidedly do, that the so-called "throaty" voice produces no vibration either in the resonance-chambers or in the teeth, let us observe how the bones of the face must take part in the vibration of properly produced tones, both in speaking and singing. Produce a "throaty" tone, coming only from the larynx, place the teeth of the lower and upper jaws very gently in apposition, and no vibration is felt. Now produce a tone in which all the resonance-chambers are used with the teeth in apposition, and the vibration is so distinctly felt as to become exceedingly uncomfortable. Apropos also to this, I would establish the principle that speakers and singers should have good teeth, whether they be natural or artificial; also that the occupation of your patient should be considered. In this regard, advancement in • mechanical dentistry has happily furnished good material especially applicable to the cases here considered. How often do we find that nature is so perfectly balanced that discoveries and appliances often cover a wider range of necessities than that for which they were first made.

The above are only hints. I am here as much for the social pleasure of being with you as to try to add to the scientific interests of your meeting. I am reminded that the possibilities for expansion in the application of dental science are great. As dentistry is rapidly broadening into surgical fields, it may not be assumption to think how it may come to pass that you may some day find it necessary to become elocutionists and singing-masters. "Music hath charms to soothe even the savage breast."

But, seriously, is it not time that we realized the fact that a study of any part of the human body involves necessarily a study of the whole?

May I digress for a moment and call to your attention that the main pages in our dental journals are devoted largely to some

reflections upon some imaginary or real violation of suggested therapeutics; to some proposed theory as to the management of a society, or to ethics in some remote corner of the world? Please pardon me for the suggestion, but would it not be better if we could broadly and optimistically pour the milk of human kindness all over this land, and at the same time think of and act for the good of our fellow-men in the things which will make him physically happier? Surely our efforts would be well repaid in the certainty that we have made him better; the result of which will be the working out of his own individuality, that high ideal for which he was created. Let us live the broader, the higher life.

I have, I know, really said nothing, but if, coming from one who is in sympathy with you as brethren, I have added even the smallest quota of enjoyment or profit, I shall feel that I might have come to a worse place. I shall never hope to go to a better one until the summons comes to go one step higher into the land where dental pathology is unknown, and where oral surgery is not required.

International.

DENTAL BRIDGE-WORK, FIXED AND REMOVABLE.

Dr. Sydney S. Stowell, Pittsfield, Mass.

Dental bridge-work is at the present time the most used and most abused branch of dentistry.

As often seen in the mouths of patients, it is the nastiest thing conceivable; it is also the neatest dental device, according to merits of the work.

At its best no progressive, up-to-date dentist should or can afford to avoid this work. At its worst all should avoid it.

But few can be perfect in its construction; those who cannot perfect it, and who recognize that fact by their record of failures, do wisely to abandon the work, or study the science of dental bridge engineering until it is mastered.

There are many reputable men in the profession who frankly admit that they do not do dental bridge-work, and I honor them for their honesty. And I condemn the men who through ignorance and inability continue in their botchery. The laws under which we live make no excuse for ignorance. When any man broadly condemns dental bridge-work and pronounces it a curse to humanity, he admits his own inability to make a good bridge; but he does not prove that others cannot and do not perfect it.

If I had a bad record of failures, I would try to find out the cause and correct it if possible. I have had failures; yes, many, and by these have I been taught my most valuable lessons.

It is my opinion, based upon experience and observation, that no removable bridge, however constructed, can be as cleanly as a perfectly-constructed fixed bridge; there is no good reason why a fixed bridge should not be as cleanly as the natural teeth in a state of perfect health. The great objection to fixed bridges has been the liability of the porcelain facings to fracture, and the supposed difficulty in repairing them; this, however, need not be considered a difficult operation when understood.

Taking advantage of modern invention, no one need fear the breaking of porcelain facings. I am indebted and shall be ever grateful to Dr. George A. Bowers, of Nashua, N. H., for a most perfect system, which I will briefly describe. The tooth is ground to place, backed with 24-carat No. 32 gold, burnishing well over the edges to protect the porcelain from the borax; backing is now removed, and a piece of No. 22 to No. 24 22-carat gold is placed on the tip, extending from the pin-holes to the tip that is soldered to the backing, which is then replaced upon the tooth and finished with file or wheel. By this method the fracture of facings is rendered practically impossible.

I would, unless in exceptional cases, avoid an all-gold crown in the front of the mouth, for esthetic reasons. The practical value of an all-gold cuspid as an abutment to a bridge may in some cases outweigh the esthetic objection to it.

The dental bridge most commonly called for is for the purpose of supplying the lost upper bicuspid. The construction of this bridge presents the greatest objections from the esthetic standpoint, because of the usually sound cuspid which must be used as one of the abutments for the bridge. Conditions must here govern the method of procedure. I have many times cut off a sound cuspid for the purpose of making a Richmond crown, so-called, and supplying the two bicuspid or molars, bridging to whatever abutment I could secure in the posterior part of the mouth. I have yet to regret that operation, although I have never become so radical a surgeon as to resort, without some pricking of conscience, to the cutting off of a sound cuspid. I have in use a great many bridges, extending over periods of from six to eight years, where I have put an all-gold crown upon the first molar, carrying in the first and second bicuspid and anchoring the forward end of the bridge by a dovetailed bar into a large gold filling placed in the distal approximal surface of the

cuspid, placed there by myself for the express purpose of anchoring a bridge. I make this explicit, because I wish to emphasize that in the placing of that filling I realize every moment in the preparation of that cavity what is expected of that filling. I give it no ordinary anchorage; I give it an extraordinary anchorage. I cut through to the palatal margin, forming a dovetail cavity. I cut as deep a margin as possible consistent with the general construction of the tooth, considering well the principle of force and resistance, and I will say with all honesty that I have not met with a failure in that anchorage. I have modified the method of attaching the bridge to this filling by making in some cases simply a bar and slot, in which the bridge rested for support. In another case I have made the bar of dovetail shape, and cut a dovetail in the filling, allowing the bar to dip into that. In many cases of late I have followed the principle of boring a round hole down into the large portion of the filling. While preparing the cavity I select a drill, and carry in my mind's eye the outlines of the filling as it will be when finished. I place a platinum-iridium or clasp gold wire of about fourteen gauge, passing over it a pure gold disk a little smaller in circumference than the extreme circumference of the filling, so the margin lies a little within the margin of the filling. This is waxed in place on the wire, invested, and soldered. The gold is then burnished over the filling and the wire cut off, the crown placed on the first molar, and the construction of the bridge commenced from that point. In soldering, the little dowel and disk are incorporated in the bridge. I have been very cautious where I have placed it, that a sound, substantial cuspid was used, and the filling anchored upon my honor. I have taken the liberty in some cases to prepare a cavity in a perfectly sound cuspid, and have yet to regret that procedure. This should always be a loose joint; a tight joint would loosen any filling.

The removable bridge, of which I promised to speak on this occasion, is one in my own mouth, and at the close of the meeting, I will submit myself to an examination. I placed it in position and wore it for six weeks without removing it, then submitted to its removal before a body of dentists, and we found that while it was not perfectly clean, it was not very dirty, but under the bands it certainly was not in a thoroughly aseptic condition.

The bridge supplies the upper left lateral incisor, and the first and second bicuspids. In reference to clasps, I wore a clasp plate which involved the loss of the enamel upon my cuspid and first molar, and the teeth became very sensitive. I wore a gold

plate for several years, and then a rubber plate, and both were exceedingly troublesome to me.

I will briefly detail the construction of this bridge. An all-gold crown was fitted to the cuspid, a narrow band or shoulder made by winding wire of about thirty gauge around at the gum margin; this was soldered to the crown, forming support for a band around the crown to which the bridge was fastened with solder. The molar crown was constructed in the usual manner, and a little square box placed in the anterior surface of it. A square bar was put in the box, and a gold clasp fitted tightly to the crown. The bar and clasp were soldered together, put in place on the crown. The band around the cuspid was put in place, an impression taken in plaster, the crowns were removed, leaving the clasp and band in the impression. A model was cast upon which appeared the clasp and band, that were then incorporated into the bridge in process of its construction.

Cosmos.

LIQUID AIR IN MEDICINE AND SURGERY.

The discovery of how to produce liquid air is due to an Englishman, but it is said that an American has gone further than this, and has succeeded in putting the discovery to practical use. He also claims that in medicine and surgery its possibilities are numerous. According to the *Cosmopolitan*: "By means of this process air absolutely free from germs could be furnished in any amount; and if the stimulating effect of an excess of oxygen was desired, it could be had without trouble, quite free from the impurities which now often make this gas objectionable. The temperature of hospital wards, even in the tropics, could readily be cooled to any degree prescribed by the physicians in charge; and by keeping the air about yellow fever patients down to the frost point, the nurses would be perfectly protected against contagion, and the recovery of the patients themselves facilitated. Again, the cauterizing cold which liquid air is capable of producing might be used in cancer with great advantage, as compared with nitrate of silver, since, while it destroys the flesh to which it is applied, its action is perfectly under control, and can be stopped in an instant. It is probable also that hay fever, asthma, and even consumption could be greatly relieved without change of climate by this pure, cool, germless air."

Medical Record.

TREATMENT OF CERVICAL BORDERS.

Dr. Stafford G. Perry, New York.

From whatever point it may be considered, the cervical border presents the weakest portion of every approximal cavity. It is inaccessible, it is anatomically weak, and, above all in importance, it is, from its position, most vulnerable to the insidious agents that destroy the teeth.

In considering this border, then, we have to contend with the most difficult conditions ever met with in the care of the teeth, for it goes without saying that the approximal cavities, as a class, are the most troublesome in the mouth. We can never be old enough, wise enough, patient enough, and accurate enough to care for this border too perfectly.

There is such great variety in the conditions found here that the operator is constantly meeting with difficulties that enlist his keenest interest and stimulate his highest ambition.

Logically, the first thing to consider is the preparation of this border for the reception of whatever filling material may be used. Here we meet at once with an anatomical condition that must receive most careful attention.

I refer, of course, to the increasing thinness of the enamel as the cavity extends toward the root of the tooth. Of course, we must cut until we have reached solid structure, however far we have to go; but here we are met by the question: What is solid structure? Strictly speaking, we might cut up on the root, even above the border of the enamel, and not find it.

It may be answered, "Then we had better do so." To this I assent, as a general rule, but not by any means in all, for some teeth are in a condition that a solid border could not be found without going far under the gum, and then the cavity could not be filled and finished in such a manner that the gum would ever again remain perfect along this border.

I am convinced that ruthless disturbance of the gum is given little heed to by most operators—by many, who still with a separating file destroy the perfect contour, in spite of all that has been written and said against this practice during the last twenty-five years, and by others who are such radical contourists that they cannot rest until they have cut even small cavities up under the gum, and made large fillings that shall have free edges, and that, along the cervical border, almost invariably leave a slightly

disturbed condition of the gum, which bleeds readily when the floss silk or toothpick, or even the brush, is used.

More than twenty years ago, in an article on the treatment of the approximate surfaces, I advocated, in some cases, this free cutting of even small cavities, but I never supposed the system would be applied generally and to teeth of good structure. I have repeatedly seen teeth from the hands of extreme contourists, where every filling on the approximal surfaces of bicuspid and molars ran far under the gum, and where that tissue at the cervical border was ready to bleed freely at the slightest touch. I will grant that such fillings are safe,—none could be safer,—but in many I have seen the teeth of such good quality that I did not consider such radical operations necessary, for the teeth would have been safe with the filling that did not reach under the gum, and there would have been no disturbance of that tissue, and, besides all this, there would have been less display of gold, and infinitely less work and pain in performing the operations. In cutting, therefore, along the cervical border I believe it to be good practice to avoid going under the gums if the teeth are of good quality, and the general conditions in the mouth are not destructive.

Then, in cutting, the diminishing enamel must be considered, and in cutting a little more, in the hope of getting a better border, there is danger of reaching such thin enamel that it may be a question if there has been any gain by this more thorough cutting. It seems to me there is no ordinary operation where nicer care and judgment are called for than in the preparation of this cervical border. It is literally a "ragged edge," which one may approach too timidly, or over which one may too boldly go.

In the preparation of it for gold there must be more thorough cutting than for any of the plastics, because the force required in condensing the gold might check and disturb an enamel border, which might be firm enough to receive a plastic. Then, too, the preparation must depend somewhat on the gold to be used.

If cohesive gold is to be used, there must be made one or two retaining points, or a retaining groove must be cut across the whole cervical border. If soft gold is selected, it may be that no retaining point or undercut will be needed.

It is probably safe to say that no dentist of experience can be found who would not be glad if he could be free from the necessity of ever making a retaining pit or cutting a retaining groove in any tooth to be filled with gold. Then would be saved the

devitalization of the border of the cavity caused by cutting the fibrils, the filling of a pit or groove which is likely to be imperfectly done, and the greater danger of crushing an enamel edge which has been weakened by the making of this pit or groove. But beggars cannot be choosers, and there must be retaining grooves in every cavity to be filled with gold.

Luckily, they need not always be at the cervical border, since the introduction of the matrix, which, making the fourth wall, becomes a great help in holding the gold in place, so that the retaining pit or the groove can be dispensed with in starting the filling, and then the mallet can be used without the fear of crushing the enamel edge, and with the certainty of making a perfect adaptation of the gold.

But if the pit or groove is omitted, there must be great watchfulness lest the gold move after it has been condensed along the cervical border. I have had failures at this border years after, when I felt certain that the gold had moved slightly without my notice before I had it securely keyed in by packing against the side walls of the cavity.

In a cavity which has been prepared along the cervical border without a pit or retaining groove, a mat of soft gold can be laid, extending a little beyond the cavity, and a matrix applied, pushing the protruding gold toward the neck of the tooth, and having the effect of holding the mat in place, and making it possible to get perhaps a more perfect adaptation of the gold to the extreme enamel edge of the tooth.

If we can have both hands free, so that the gold can be held rigidly in place for the upper third of the cavity, or till there is no chance of its moving from its place, the absence of retaining pits or grooves along the cervical border may be a clear gain. This may involve the need of an attendant to hold the rubber out of the way and reflect the light, and perhaps use the mallet. If the operator prefers to use the mirror in packing the gold, or to reflect the light and select a matrix that can be fixed to the tooth, a pit or groove at the cervical border may be necessary, since the left hand is not free to hold the first pieces of gold in place.

This feeling of certainty that the gold will stay exactly where it is placed is of great importance, and should make one pause in the preparation of a cavity to make mental comparison of the two systems. My own belief is that an operator should be as ready with one method as with the other.

In what I have said thus far I have in mind the use of a soft gold, such as Abbey's, Morgan & Hasting's or Rowan's soft

cylinders; either of these by slight annealing becomes cohesive enough to be packed as cohesive gold, and yet without entirely losing their soft quality.

A gold of this kind answers the purpose so perfectly that I never use a strictly cohesive gold along this border. The introduction of the de Trey as well as the Steurer gold, which seems to meet with much favor in some quarters, lessens the need of retaining pits, as this form of gold stays where it is placed better than any other, and can be used with less care in holding the first few pieces in place. Examination of the surfaces of fillings made of these golds shows an accurate adaptation, and it may be that they may yet prove to be most suitable along the cervical border. Any method that will encourage or allow delicacy in the treatment of this border is to be hailed as an advance. We appreciate this when we think of the days of cohesive gold and the sledge-hammer blows of the mallet.

International.

THE USE OF FORMALIN.

Dr. H. Jerome Allen, Washington, D. C.

The substance now known synonymously as formaldehyde, formic aldehyde, methyl aldehyde, or oxymethylene, is a gaseous body formed from methyl (wood) alcohol by oxidation.

Formalin (which is the trade name adopted by the Schering Chemical Works to designate their product) is a saturated watery solution of the gas formaldehyde, and occurs as a neutral, colorless volatile liquid of a pungent odor and sharp taste, miscible in every proportion with water and alcohol.

Paraform (polymerized formalin, paraformaldehyd, paraformic aldehyde or tri-oxymethylene) results from a simple evaporation or heating of formalin, and appears as a white, indistinctly crystalline powder, which is stable under ordinary conditions, and is made into tablets and sold in that form for disinfection.

Paraform is volatilized by heat, and is soluble in hot water, the solution possessing the characteristics of ordinary formalin.

The gaseous compound was first discovered by Von Hoffmann in 1867, who produced it by passing the vapor of methyl alcohol mixed with air over platinum powder heated to redness. Later it was, and is still, produced by the action of silent electric charges on a mixture of hydrogen and carbon dioxide.

Its germicidal properties remained unknown until discovered by Loew in 1888. Since then a host of authorities have recognized and investigated its properties, and have, as a rule, pronounced it far superior to any general disinfectant now in use.

"Formaldehyde has the chemical property of uniting with sulphureted or nitrogenous products of decay, fermentation or decomposition forming true chemical compounds, which are odorless and sterile, and these compounds are in most cases actually antiseptics themselves.

"It is from this property of combining chemically with albuminous or nitrogenous bodies that formaldehyde derives its germicidal and bactericidal power; since bacteria and microorganisms generally are not only albuminoid in character, but their food is mainly albuminoid, and when formaldehyde is present it combines with both the bacteria and their food, thus destroying them as well as the possibility of their existence." (Lilly.)

In this fact lies the surpassing value of formaldehyde over such disinfectants as corrosive sublimate, carbolic acid, lysol, etc., for albuminous matter is at once coagulated by contact with these agents, and the resulting antiseptis is superficial, while the formaldehyde solution, being possessed of a chemical affinity for albuminoids, thoroughly impregnates (and consequently sterilizes) all such substances with which it comes in contact.

Partly as a natural sequence to this property is developed its power of hardening and preserving animal tissue; converting soft tissues to a hard, leathery mass, dependent upon the strength of the solution and the time of action.

This effect is due, as before stated, to its penetrating action, whereby it readily unites with the albuminoid substance in the protoplasm of the cells, and checks all putrefactive changes permanently in dead tissue, and for the time being checks the growth of cells in living tissue.

Another valuable property of formaldehyde is its absolute lack of toxicity when in contact with living tissue in almost any strength. Every paraform, which contains one hundred per cent. of formaldehyde, is perfectly harmless if accidentally swallowed, inasmuch as its conversion into the gaseous state is so slow at the temperature of the body that it does not act at all injuriously upon the mucous membrane of the alimentary tract. The possession of these properties by formaldehyde should give it the first place in the list of dental antiseptics and disinfectants. Already its use in the profession as a general disinfectant has become quite general within the past two years.

It is the active principle of all the lately introduced mouth-washes and antiseptic solutions, and their proven superior germicidal properties are due to the presence of this agent.

Its remarkable property of existing in three available forms

—gas, liquid, and solid—adapt it readily to all purposes and classes of disinfection, and it bids fair to become the universal disinfectant of the near future. A few of its dental applications may be enumerated as follows:

For occasional use in the office to destroy all noxious odors, disinfect the draperies and furniture, and purify the atmosphere, nothing is better than a Schering formalin lamp, which disinfects the premises by the production of formaldehyde gas by the thermal evaporation of paraform. The ease with which the disinfection can be accomplished is one of its principal recommendations.

In the evening before leaving the office, place from ten to twenty paraform pastils (according to size of room) in the receiver of the lamp, light it, close the premises tightly, and let them remain so until the next morning, when by opening the doors and windows all odor of the disinfectant rapidly disappears, and the office and its exposed contents have undergone a complete sterilization.

In the treatment of putrescent root-canals is formaldehyde particularly valuable. A twenty per cent. solution should be worked into the root until all fetid odor is destroyed. The contents should be thoroughly removed, and the root can be filled immediately by incorporating a minute quantity of paraform with the powder of the cement used in the filling.

Another method of treating a putrescent canal with either a blind or fistulous abscess at the apex is to clean out the contents thoroughly with a twenty per cent. solution, and then seal in a small quantity of paraform. The paraform is vaporized so slowly at the temperature of the body that the canal and the apical tissues are kept in a continued aseptic condition, with the resulting death of the micrococci and their spores.

In personal practice two applications at intervals of a week have sufficed to give most encouraging and apparently lasting results. Several chronic abscesses of years' standing have healed up with surprising rapidity under this treatment. *Cosmos.*

If you were cruel enough to cut off a wasp's head and put it on the point of a needle in front of sugar and water, you would find that it would begin greedily eating it, quite unconscious of the fact that the food was dropping out of its gullet as soon as swallowed.

THE IDEAL FILLING MATERIAL.—PORCELAIN ENAMEL.

Dr. Norman W. Kingsley, New York.

I have been called many a time to inspect mouths where Dr. Jenkins, of Dresden, Germany, had inserted porcelain fillings in teeth, and with close scrutiny have sometimes failed to detect the porcelain from the tooth substance.

This material contains the ingredients and possesses the properties of both porcelain and enamel; it furnishes a perfect material for filling almost all cavities which are in condition to receive permanent treatment. It resists acids, is not stained by sulphides, is harder than the substance of which artificial teeth are made, does not change in color nor disintegrate in the mouth, and is tolerated in cavities which under gold would be continually sensitive to change of temperature.

It is not a material for careless or incompetent operators, as its successful use requires the highest qualities of skill, taste and judgment.

Although only a limited number of American dentists in Europe have had an opportunity of putting this enamel to a practical test, every one is enthusiastic in its praise.

Dr. Abbot, of Berlin, says: "I consider the whole process, and the enamel body in particular, one of the greatest achievements in modern dentistry, especially from the esthetic standpoint. When properly and judiciously manipulated, this material enables the dentist to improve teeth hitherto disfigured by gold or cement, to an almost incredible extent, by restoring contour, color, and by imitating the natural gloss to perfection. By its means weak walls, which would ordinarily forbid the insertion of gold, may be sustained, and pulps nearly exposed and sensitive to thermal changes permanently protected. In short, besides the many uses to which the enamel may be put, in pivot and bridge-work, and although its preparation would undoubtedly require some skill and conscientious care, the dentist may, where a good impression can be obtained, perform with it an operation satisfactory to his patient as well as to himself. No dentist who cares to do artistic work, and wishes to keep in the front rank of his profession should be without this outfit."

Dr. Abbot's experience is confirmed by Dr. Sylvester, dentist to His Imperial Majesty, the German Emperor; Dr. Miller, Professor in the University of Berlin; Professor Sachs, Breslau; Dr. Young, Leipsic; Dr. Thomas, Vienna; Dr. Davenport, London, and Dr. Crane, Paris.

Dr. Spalding, Paris, writes: "I have surprising and delightful results from using Dr. Jenkins' porcelain enamel, and my patients are enthusiastic in praise of this process. It is to me one of the most useful and artistic adjuncts which has ever been offered to our profession, far outranking any other method of porcelain inlay or filling that has been devised. It will melt to a most beautiful edge, it can be contoured when desirable, it can be easily melted, and is easily inspected during every stage of the process. This but feebly expresses my gratitude for so beautiful a help in my daily work."

And to the foregoing I unhesitatingly add from personal experience my endorsement of all the qualities as set forth.

Let no one be deluded with the idea that this is a cheap process for repairing decayed, broken or deformed teeth. It is more expensive than gold; requires more time, more judgment and more artistic skill than is required in the insertion of gold fillings, but to persons of refined tastes who are not seeking "cheap dentistry," the fee ought to be and is a secondary matter.

Items of Interest.

PRACTICAL THINGS.

J. G. Templeton, in Century.

To make moisture tight gutta-percha fillings, dry the cavity well, place in it a pellet of cotton saturated with absolute alcohol, remove the cotton, and with a warm air syringe evaporate the alcohol, varnish the cavity with a solution of common resin in chloroform, warm the gutta-percha and pack with a cold instrument; heat a thin-bladed instrument and pare off the surplus gutta-percha; any further trimming or polishing required may be done with oil of cajeput.

To protect from thermal changes, particularly in deep cavities where the pulp is not quite exposed, first dry with bibulous paper, then apply on a small pellet of cotton absolute alcohol, which has a strong affinity for any moisture that may be left in the cavity or open ends of the tubuli. When the cotton is removed evaporation takes place rapidly, leaving the cavity perfectly dry. Now varnish inside of cavity to near the margin with a solution of common rosin, in chloroform, or of gum sandarac dissolved in sulphuric ether; then take a small piece of asbestos felt, moisten with pure wood creosote, campho-phenique or oil of eucalyptus; cover the side to go next to the pulp with a mixture of iodol, oxide of zinc and vaseline. Now place over

the bottom or that portion of the cavity nearest the pulp; over this place a thin piece of lead or a thin piece of aluminum plate, which will prevent pressure against the bottom of the cavity while inserting a gold or other metallic filling.

TREATMENT OF PYORRHOEA.—This is a term used to name a condition of the gums frequently seen, and with which the writer has been battling since 1866, which was before any of Dr. Riggs' writings were published. During the last twelve years the amount of writing that has been done on this subject is quite voluminous, and the most of it reminds me very much of the steam that is seen emerging from the top of an escape pipe. The most valuable contribution on this subject is to be found in the "American System of Dentistry," Vol. I., and which was written by our esteemed friend, Dr. Black.

The writer's treatment for this trouble consists of thoroughly removing all deposits, and then applying finely pulverized sulphate of copper, which is caustic, astringent and stimulating. It has been my observation for many years that the most aggravated cases of this disease are found in the mouths of those persons who never eat pickles or anything sour, hence we are in the habit of recommending their use at meals, and also the free use of lemons and oranges. In my humble judgment all such persons should be impressed with the importance of adopting an anti-scorbutic diet.

Placing rubber-dam on lower front teeth, a slip-noose can be put on the lower front teeth with one hand, while the rubber-dam is held down with the other; get the slip-knots ready first, draw them tight, and they will hold as long as wanted.

TRIMMING RUBBER PLATES.—In finishing plates always trim the rim low over the bicuspid, leaving it high as can be worn over the cuspid and back of the second molars; do not file rim to a knife-like edge, slightly bevel inside of rim at the top, extending down about three-sixteenths of an inch.

GOLD SOLDERS.—Take a United States \$5.00 gold piece, 20 grains coin silver, 10 grains pure copper, 6 grains English toilet pins, melt the silver and copper together first; after melting this and the gold together, add the pins, flow into an ingot and roll, cut it into small pieces and melt again if it should not roll well first time; this will give a solder a little more than nineteen carats fine, and flows nicely on coin gold, being the same color.

TO SOLDER CAP ON GOLD CROWN.—To solder a cap on a gold tube intended for an artificial crown, lay the cap on about

a tablespoonful of finely cut asbestos, put the tube in place on the cap, drop in the solder and a little powdered borax, then blow a yellow flame all around the tube until the solder flows, and there will be no danger of melting the plate.

POLISHING INSTRUMENTS.—To keep instruments polished, use a material sold in wholesale jewelry houses under the name of diamantine; the method of using is to place a small quantity of the powder on a piece of thick, spongy sole leather, and rub the instrument on it, when it will soon take on a fine polish. This so-called diamantine is nothing more nor less than oxide of zinc, and can be bought in a wholesale drug house much cheaper than anywhere else.

To keep the rubber-dam from jumping off a lower molar tooth, tie a small bead in the thread to be used as a ligature, and apply around the tooth so that the bead will come on the lingual side of the tooth and thus frequently avoid the use of a clamp, which is not admired by many patients.

SURGICAL TREATMENT OF ABSCESS.

In opening an abscess the surface should be carefully cleansed, and other antiseptic precautions observed. All instruments should be antiseptically treated.

The first step in our operation would be the cleansing of the surface with hydrogen dioxid, followed by a small injection of a five per cent solution of eucain; an incision is then made at a point on the gum immediately overlying the apex of the affected root, with a pointed bistoury thrust down to the bone—a good-sized incision should be made. The bleeding is then encouraged by the use of hot water for a few minutes, when a pellet of cotton, which has been dipped in a solution containing one or two per cent of cocain and antipyrin four per cent, is then laid against the periosteum at the bottom of the cut. In a few minutes bleeding will cease, when a spear-drill, driven by the engine, is passed through the bone into the tissue of the apical space.

Any bleeding which may occur is encouraged. For washing incisions and the abscess there is no agent more acceptable than a twenty per cent solution of phénol-sodique, it being both sedative and antiseptic. A fair-sized round bur is then used to cut away necrosed bone if any is found.

If it is found necessary to excise the end of a root, a small fissure-bur is used and the root rounded, leaving no rough edges.

The wound is now cauterized with a fifty per cent solution of zinc chlorid, and the cavity loosely filled with boracic acid gauze, your patient being seen every day, and less gauze inserted at each dressing as granulation progresses.

The time required for healing is from four to ten days, according to existing conditions. An antiseptic mouth-wash should be recommended in addition to the above treatment.

L. Meisberger, in Cosmos.

USEFUL HINTS.

Dr. T. P. Hinman, Atlanta, Ga.

In most cases it is not necessary to ligate dam in the anterior teeth, especially when the Perry separator is used. The pain of separation with the mechanical separator is not caused so much by the act of separation as by the laceration of the gum by the separator jaws passing too far up. This can be prevented by placing gutta-percha under the arms and allowing it to rest on the teeth.

To make thin rim disks at a moment's notice, place a disk on the mandril in the hand piece and revolve it rapidly, at the same time holding an instrument against the part nearest the mandril and gradually passing it outward to about one-eighth of an inch of the edge. This wears off the grit on the central surface of the disk, but leaves fresh grit on the rim.

A little wax on your engine belt will prevent it from slipping; a composition of beeswax and rosin is better.

To devitalize painlessly with arsenic, place a small pledget on freshly exposed dentine as far from exposure as possible; then place on the exposed pulp a pledget of cotton saturated with equal parts of clove oil and carbolic acid. This should be dipped in a few crystals of cocaine just before passing into the cavity. Now seal lightly.

Varnishing sensitive cavities with gum mastic dissolved in chloroform will prevent pain from thermal changes, after the insertion of a metallic filling, provided the cavity does not extend too near the pulp; if so, varnish, line with cement, and then place the metallic filling.

To secure perfect dryness without the dam, have napkins eight inches square of shirt bosom linen. Make rolls of cotton packed hard, and place them over the saliva ducts; now roll the napkin into a long rope and place around the tooth. While holding in position with the fingers place a dam clamp over the

tooth, which will hold the napkin in position and leave both hands free to operate.

The pain of excavating hypersensitive teeth can be greatly reduced by placing a pellet of cotton saturated in pure carbolic acid, then dipped in crystals of cocaine hydro-chlorate, in the cavity, and then blowing hot air on it for a few minutes. When the cotton is removed quite a layer of dentine will be found anesthetized, and if the operation is repeated the tooth can be excavated without pain.

A small eye tenotome lance is the best for an abscess.

Try saturated solution of silver nitrate in children's teeth, and when the cavities are fully blackened fill with sheet gutta-percha, bringing over interproximal spaces.

A good root-canal filling is made by dissolving sheet gutta-percha in chloroform, and then adding iodoform about one-sixth of its entire bulk. Its many advantages are apparent.

Items of Interest.

I am a strong believer in gutta-percha as a tooth-preserver. With it we can carry along the teeth of the young until they have arrived at an age when gold, or some other metal, is the proper filling. The red base-plate, for some cases is the best we have. To make gutta-percha fillings stick, the essentials are a dry cavity and Canada balsam. I never use gutta-percha without first applying the balsam to the cavity-walls, and it is a constant aid in starting gold fillings. I never have use for retaining pits. The balsam should always be hardened by being placed in a porcelain dish (a discarded butter-dish is good), and by a low heat being placed under it for several hours, or long enough so that when it is cool it is a hard, friable substance. Place a few small pieces in a small bottle and add chloroform until it is a thin fluid, and it is ready for use. The bottle should be in convenient reach from the chair, and should be fastened to something that would prevent its tipping over.

A. Osgood, in Cosmos.

The enamel surface may be restored to a facing after being ground by painting the surface with a thick solution of borax and water, and then heating the facing to the melting point of gold, or by painting the surface with liquid silex, by letting it dry, and then heating it to a point half way between the fusing point of gold and that of Close's body.

J. E. Nyman, Review.

THE ITINERANT AMALGAM PEDDLERS.

B. H. Catching, D.D.S., Atlanta, Ga.

The woods are full of alloy peddlers. The virtues of their wares are remarkable. Each has the only alloy that should be used; and the other fellows' is not worth office room. This is a sign of professional degeneracy, pure and simple. Not that I am averse to the use of amalgam, but that the demand for an untried article, a cheap article, should be sufficient to support so many peddlers. Such venders should be given a wide berth. They have not a reputation to make and none to lose.

I remember well a very knowing fellow, who called on me. I had a few moments leisure and listened to his fancy tale. Finally, I told him that we had reputable dealers in close proximity who gladly supplied all our wants, and it was our duty to encourage such establishments. He lifted his voice from the low Uriah Heep tone to one of almost anger, and said he never saw dentists so far behind the times; that he could sell a hundred ounces in Chicago, while he was selling one in Atlanta, and that it showed the up-to-dateness of the profession in the Windy city. Finally he became so obnoxious, that I took out my watch, and said to him that within an hour a train would leave for Chicago, and I would advise him to board it and hie away to pastures green. It is strange that dentists will buy stuff of such parties instead of sticking close to the reliable manufacturer. If an alloy only has cheapness as its advocate, it is a very dear article to handle. This rule may be applied to anything in the marts of trade. Give the alloy peddlers the go-by. They are hunting suckers, and generally find them. Their bait sometimes entices the reputable fellow to his ultimate source. I know that all things are cheapening—all except brains. Good, pure, wholesome brains are yet high in the market. But does it require such brains to use, at best, a cheap stuff? *Ohio Journal.*

REPAIRING GOLD FILLINGS.

Dr. Stafford G. Perry, New York.

I have no means of knowing what is the general practice—whether it is that of removing the whole gold so as to get access to the defective place, or that of simply cutting out the decay and repairing with gold or amalgam, or even with gutta-percha. My own practice has been almost invariably that of repairing the defective place, if the body of the filling is good. If the gum

cannot be held away by the rubber-dam, it can be by a suitably shaped instrument, so that access can be had to the cavity from both the buccal and lingual sides, and the operation becomes a very simple one either for the use of gold or amalgam.

If a large gold filling requires repairing at this point, it is more satisfactory to do it with gold if it can be done accurately; but if the defective place is inaccessible, a thoroughly durable operation can be made with amalgam. I consider this one of the best uses to which amalgam can be put. I have done so many with it in this way, and have seen them last so many years, that I have come to have great confidence in it for these places. The result is somewhat like that attained by using amalgam in the upper half or two-thirds of the cavity, and finishing with gold at the same sitting.

The repairs I have in mind are only slight, however, and do not let the amalgam come in sight. The ability to make these repairs so easily is one reason why I am not so ready now as formerly to cut the teeth away so that each cavity on the approximate surface shall go under the gum. *International.*

ROOTS AND BRIDGES.—With very frail roots, you will find that when they are well cleansed mechanically of the accretions which have collected on them they will be held together by bridge-work. All roots not parallel should be ground and every bit of enamel carved off at the cervical margin, so that the crown, instead of hugging the body of the tooth, will be cone-shaped, and then the harder you drive it the tighter it clings. Ordinary teeth have a more offensive odor than a well-adapted bridge, for there is more secretion and more foreign particles work into the interstices.

C. L. Hungerford, in Dental Digest.

In taking an impression in plaster for a partial plate, or in taking a full impression of the teeth, use a clean impression cup evenly filled with plaster, leaving but little surplus. Wait till your plaster has set hard; then slip the cup off, it having been oiled slightly, leaving the plaster all in the mouth. Two grooves are then cut in the hardened plaster on a line parallel with the cuspid teeth, not cutting quite through. Then with a quick pry with a pointed spatula or knife the anterior piece is wrenched loose. The lateral pieces are broken off with the thumb and finger. The large piece covering the roof of the mouth may readily be worked loose. Then you have four pieces which are easily united.

G. D. Sitherwood, in Illinois Society.

Dr. J. B. Rich, Washington, says he has used formaldehyde two years, and no substance which he had used before fills the purpose of treating dead dental bone like it does, and for antiseptic purposes we have nothing nearly its equal. It is quite astounding that the dental profession has not used it more generally. It is no longer an experiment, as it has been used very largely, and it qualities fully described. In conditions of dentine where the pulp has been decomposed, we have no antiseptic that is so good. It is not a coagulant, but is a very powerful agent, and of course must be used with care. We prefer the form called paraform; it is produced by the evaporation of formalin, and should be put in the pulp-chamber and sealed up; it dissolves very slowly, and its action is more certain than is that of formalin. The pain produced by its use is not very serious.

The disinfecting property of formalin is more perfect than that of any other substance. If a room infected with bed-bugs or other insect vermin is closed tightly, and paraform, evaporated by means of a lamp, is left in the room for thirty-six hours, not a single insect would be left alive. The reason is that when evaporated by alcohol the vapor has the same specific gravity that the air has, and permeates wherever the atmosphere goes. If a little particle of paraform is put in a pulp-chamber and sealed up for a few days, the canals will be entirely purified and the tubuli of the tooth will be open to receive any substance we may wish to apply. It may be used as a mouth-wash in canker in a solution of 1,000 to 1, and as an eye-wash in proportion of 4,000 to 1, which will be found sufficient to produce a tingling sensation in the eye and the lids.

Cosmos.

CLASP PLATES.—When a resort has to be made to clasps, either in gold, silver, or vulcanite work, for the steadying, retention, or greater stability of artificial teeth, I often find it is better to crown with gold the tooth thus used, as the action of the clasp, either by wear or by the deposition of food held next the tooth, causing decay, or from whatever other cause, destroys these teeth so quickly that something of this kind should be done for the benefit of the patient, and to prevent the loss of such teeth made very valuable for the support they give to the denture.

T. F. Chupein, Office and Laboratory.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. Harry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.]

Question 13. *Do you believe that artificial teeth change position somewhat in vulcanizing?*

No, but from bad flasking. *J. P. Grey, M.D., D.D.S.*

Not if Dr. Snow's method of packing is used.

Dr. J. A. Libbey, Pittsburg, Pa.

I have often suspicioned that they do.

Geo. F. Keesee, D.D.S., Richmond, Va.

Under some circumstances they may change very much. Particularly where there is a large mass of rubber.

Dr. Howard E. Roberts, Philadelphia, Pa.

I believe, in the way the majority of vulcanite plates are made, there is very likely to be a slight movement in some or all of the teeth; but where each step in the process of construction is carried out with care, the best and hardest plaster used, and given time to set, a good flask used and the case vulcanized carefully and cooled without artificial aid, that cases can be made where practically no change in position of the teeth take place.

Dr. W. D. Tracy, New York.

Question 14. *How long do you take to let the thermometer on your vulcanizer run up to 320 Fahr., and how long do you permit it to remain at that point?*

For the past eight years have given this portion of the work into the hands of another, but formerly took one hour to run the thermometer up to 320 and held it there 55 minutes.

Dr. Keesee.

I run the mercury to 320 F. in 30 minutes and hold it there one hour. In making regulating plates, I run it up in 20 minutes slightly above the mark and hold it 50 minutes, if I am in a real rush, and the rubber always looks well and finishes nicely.

Dr. Tracy.

We will let some one else answer this question as I have done no vulcanizing for some years.

Dr. Roberts.

Follow Dr. Snow's directions in this also. *Dr. Libbey.*

I take 35 minutes to run up and hold it 55 minutes, when I vulcanize the old way, but I have a Brown time regulator, which I use now and every dentist should have one.

Dr. Grey.

Question 15. *Which of the numerous ways of sterilizing instruments do you advise?*

Heating them to 212 degrees in boiling water, or washing them in 10 per cent. solution of formalin. *Dr. Roberts.*

I keep my instruments well polished and sterilize in a saturated solution of hydronaphthol in alcohol, by allowing the instruments to stand in the jar for a few minutes and then wiping them off. *Dr. Tracy.*

Boiling water.

Dr. Grey.

After using soap, water and brush, I rely either on carbolic acid or formaldehyde. *Dr. Keesee.*

The amount of boiling necessary to sterilize injures finely tempered instruments. I polish instruments after using and dip them in 5 per cent. formaldehyde before using. *Dr. Libbey.*

Question 16. *Which crown do you consider best for anterior teeth, all porcelain or a collar crown?*

If the bite is not too close or root too frail, I prefer the Logan crown. *Dr. Keesee.*

This is hard to answer. Both have their place.

Dr. Grey.

I make a great many Darby crowns, that is with the platinum pin and gold floor attached and burnished to the end of the root which has been cut slightly under the gum in front and facing soldered in usual way. By this method I secure the most perfect practical and artistic results. Practical because it is strong and the adaptation to the root is perfect. Artistic because there is no disfigurement of the gingival margin either at the time of setting or afterwards, and because there is no gold showing anywhere. *Dr. Tracy.*

The collar crown if properly fit, on account of the direction of the force, it is less likely to be forced out of position or split a root. *Dr. Libbey.*

It depends upon the case in question. Sometimes one and sometimes the other. The collar crown is the safer.

Dr. Roberts.

Where rubber fails to fill out in vulcanizing, and the case does not require working over, a substantial substitute, to fill in with is any of the cements (I use Caulk's) colored with a small pinch of crocus powder for red, or ivory black for black rubber. The rubbers with these powders can be closely imitated.

W. W. Grant, in Ohio Journal.

PRACTICAL POINTS.

By Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Porcelain Crowns.—A band set in a groove, cut in the face of the root, gives the strength of a collar, without exposure of gold, irritation of tissues, or shaping up of root, as in the reception of an outside band.

Wm. Ernest Walker, S. Br. Ntl. Den. Asso.

Tooth Nutrition.—Examinations of recruits in Bavaria and Sweden, conducted on a large scale, have confirmed the assumption that the richer the soil in lime and magnesia, and the harder the drinking water, the more perfect the development of the teeth.

Munch. Med. Woch.

A Very Dense Cement.—Dr. Dunn, Sr. (Florence, Italy), incorporates a small amount of porcelain dust (pounding old porcelain teeth fine) with cement. Makes a very dense filling, with a hard, flint-like surface, especially useful on masticating surfaces.

Am. Den. Weekly.

Soft Corns.—Those very painful, often ulcerated, soft corns between the toes are relieved at once by applying resinol ointment on a pledget of cotton. A permanent cure will be effected by mixing 30 grains salicylic acid with 4 drams resinol, applying on cotton renewed every morning for from six to ten days.

To Remove Gutta-percha Points from Root-canals.—Roughen the point of an Evans' root-canal dryer; heat the bulb and pass the point slowly into the canal. Cool the bulb with a wet sponge, and on removing the point the gutta-percha will come with it.

R. B. Gentle, Indiana Dental Journal.

Root-Canal Sterilization.—Put a minimum portion of sodium peroxid in the canal and cover over with gutta-percha. After twenty-four hours wash out with dilute sulphuric acid, followed by bicarbonate of soda.

C. N. Peirce, Ohio Den. Journal.

An Emergency Crown.—In cases of emergency, or for economical reasons, the old-style wood-pivot tooth can be quickly placed in position and made reasonably secure by keeping the wood perfectly dry and using cement in crown and root.

Am. Den. Weekly.

Silk Ligatures for Retaining Implanted Teeth

fine silk. Ordinary dental floss, usually recommended and acts as an irritant. *Dr. Cool, Pacif. Med. Den.*

To Deodorize the Atmosphere of the Operating Room.—In

case of disagreeable odors, burn oil of cassia on a wisp of cotton, over the alcohol lamp. *Am. Den. Weekly.*

Measuring Root-canals.—The round rubber *waste* made by

using the punch on the rubber-dam, if pierced by a broach, can be readily adjusted to any length, and makes a neat little marker.

M. A. Mason, Indiana Den. Jour.

Sterilizing Instruments.—Boil them for five minutes in a

one per cent solution of carbonate of soda. This not only renders them aseptic but preserves them from oxydation.

Wm. Ernest Walker, S. Br. Ntl. Den. Asso.

To Hold Erosion in Check.—Rinse the mouth twice a day

with alcohol. The stinging effect on the mucous glands changes the character of the buccal fluids and corrects the acid secretions.

Dr. Merriam, International Den. Jour.

Nitrate of Silver for Superficial Decay.—Dissolve the nitrate

of silver in alcohol and place in the solution coarse particles of asbestos. When dried, they form a convenient medium for the application of nitrate of silver. *Dr. Bliss, Pacific Gazette.*

Vulcanizer Packing.—Have a ring cut of tin the size of top

rim of the boiler. With this as a pattern cut rings of thick wrapping paper. One of these, soaked in water, placed over the old rubber packing, and brushed over with stove-polish, makes a perfect joint. *Dr. A. T. Peete, Am. Den. Weekly.*

White Gutta-percha for Fillings.—Dissolve gutta-percha

in chloroform, then make a solution of chlorid of lime, in which let it stand for a week. Filter, and expose to the sun for a week, and you will have a pure white gutta-percha.

Dr. Max Sichel, Pacific Gazette.

To Remove a Pin Cemented in a Root-canal.—Cut out the

cement around the pin as far as expedient and apply aqua ammonia to decompose remaining cement, protecting the gum with rubber-dam. Rinse mouth occasionally with warm water. If a crown with pin cemented in be left over night in a bottle of aqua ammonia, the cement will be found a perfect mush and the pin easily removed. *Wm. B. Mead, Dental Cosmos.*

A Deodorizer.—To destroy the unpleasant odors from an old crown or bridge, dip them in electrozone; they will be deodorized immediately. *Dental Review.*

To Keep Solder in Place.—Add a little gum arabic to your flux and rub with the borax and water on the slate.

Dominion Den. Journal.

Modeling Sand.—I prefer the use of cottonseed oil for mixing modeling sand to water; the steam from the latter causing the formation of air bubble in the metal cast. Lard oil is preferable to the vegetable oils, as it does not burn and lump.

L. P. Haskell, Ohio Dental Journal.

Extracting Superior Cuspids.—Sometimes the upper canines are very difficult to extract. When extracting the upper teeth for a plate, remove the teeth on each side of the canine and grasp it at the sides. The sides being more flat, the forceps will not slip, and the tooth can be easily rotated. *Otis Trotter, D.M.D.*

To Reflect Light in the Mouth—Paint the dam around and between the teeth with "Japanese wing"—enamel white. Moisten the paint with 50 per cent. alcohol, giving one or more coats as required. The paint comes in small tablets, is clean, pure and odorless.

J. R. Bell, Dental Digest.

Pyorrhea Pockets.—I am in favor of washing out pockets with a solution of bichloride mercury in hydrogen peroxide. I recognize the tendency of the sublimate to deposit in using pyrozone, but in Marchand's Hyper. there is sufficient free acid present to avoid this difficulty. I believe in the efficacy of this solution.

M. L. Rhein, Dental Cosmos.

Treatment of Boils.—Moisten one part of camphor with a few drops of alcohol, and rub in a mortar with one-quarter part of salol, until a transparent fluid is obtained—camphorated salol. Apply on cotton protected from evaporation. In from 20 to 24 hours the pain diminishes, and the tumor becomes progressively smaller without the formation of pus.

Dr. Bower, Southern Dental Journal.

Pulp Removal.—Cataphoresis.

Cocain.....	grs. xvij
Aconitin.....	gr. o.i
Thymol sol.....	q. s. 3 j

Adjust rubber-dam and place in the cavity a pellet of cotton saturated with the above. Apply positive current and turn on 15 or 18 volts. When the pulp is anesthetized (a second application may be necessary) remove immediately.

W. W. Moorhead, Ohio Den. Jour.

A Deodorizer.—In case of disagreeable odors in the operating room, burn oil of cassia, on a whisk of cotton, over the alcohol lamp.

Dr. J. A. Chapple, Am. Den. Weekly.

Swaging Aluminum.—Instead of using the mallet on the palatal surface roll a wad of wet paper and use it as a half-counter, the surface is then not marred. Lay a piece of rubber-dam over the surface in finishing the swaging. It is better not to anneal aluminum; it does not need it.

L. P. Haskell, Ohio Dental Journal.

Cavity Lining for Pulp Protection.—Gum sandarac, dissolved in alcohol, used quite thin, leaves a semi-opaque film upon the cavity walls, which is non-conducting, non-irritating, insoluble, and more in harmony with dentine than any metallic substance. Allow five or ten minutes for hardening, which may be hastened by hot air.

G. F. Cheney, Dental Cosmos.

Superficial Decay.—In cases of superficial decay near the gum margin—only a white streak—rub nitrate of silver on the spots and play hot air on it from the syringe. Paint the gum with tinct. iodine, which will form iodide of silver, and prevent the spreading of the silver nitrate.

Dr. Van Orden, Pacific Gazette.

Formaldehyde as a Disinfectant for Instruments.—Infected dental instruments can be disinfected, without injury, in a closed space of less than one cubic foot, by an exposure of fifteen minutes to formaldehyde gas, generated from a pastel containing five grains of paraform, by heating the pastel over a proper alcohol lamp.

Elmer G. Horton, Dental Cosmos.

Treatment of Boils.—Incise; remove the core; fill cavity with the following powder:

Quick lime.....	} equal parts.
Sodium carbonate.....	
Alum.....	

Kills the pathogenic micrococci and produces rapid healing.

Burlureax, New York Med. Jour.

Saving the Deciduous Teeth.—Badly decayed, broken-down baby-molars can often be crowned to great advantage, the deciduous teeth being more regular, less crowded, and of shape to receive crowns with but little grinding. In durability this is vastly superior to the best fillings that can be made in these teeth. There is no reason why this method should not prove a blessing to the little ones.

J. R. Lowe, Western Den. Jour.

ITEMS.

Mere aspiration is partial realization.

Anna Cora Mowatt.

A man that cannot stand and walk and work alone is not likely to be successful leaning on another.

Be your best to-day that you may be better than your best to-morrow.

RUBBER CEMENTS.—(1) Gutta-percha, 2; caoutchouc, 4; fish glue, 1; carbon disulphide, 26. (2) Dissolve caoutchouc, 9, in chloroform, 60, and add powdered mastic, 15.

Zeit. d. allg. oest. Apoth. Ver., lii., 442.

Failures in fillings are often caused by the extravagant use of matrices and supporters, rubber-dams, ligatures, etc. Often the gingival margins are left in a state of irritation which develops into inflammation and pyorrhea. Cracks can be made by over-malleting, and when made at the cervix invite decay.

Jas. Truman, International Jour.

CLASPS.—Regarding clasps, it is my opinion that they are all dangerous. Clasps should be made as accurate as possible, and as narrow as possible. However well fitted, a slight friction must prevail, owing to the unstability of any partial plate, excepting when such plate is fastened by partial caps upon bicuspid or molars. Time will destroy any clasp tooth, and it is for this reason probably that Dr. Freeman has advocated the crowning of all teeth to be clasped.

R. H. Hofheinz, Cosmos.

FOR BURNS.—Canada balsam cannot be too highly recommended as an application to burns, especially when very extensive, the skin being entirely removed. A weak solution of glycerine is squeezed from a sponge over the denuded surface, which is then dressed with some soft ointment, either with or without the balsam. Pain immediately abates, and the healing process is wonderfully rapid. The solution must be freshly applied as often as the dressings are renewed. *Pacific Gazette.*

GROWTH TAKES PLACE AT NIGHT.—A scientific writer says that night is the time which nature utilizes for the growth of plants and animals; children, too, grow more rapidly during the night. In the day time the system is kept busy disposing of the waste consequent on activity, but while asleep the system is free to extend its operations beyond the mere replacing of worn-out particles; hence the rapid growth. This is why invalids need so much rest and sleep.

Medical Record.

Oil of cloves, for general use in the treatment of pulpless teeth, is one of the best agents at our command. It possesses the property of destroying or rendering inert septic and infectious material. In cases of apical pericementitis it is perhaps the best agent that can be used. It possesses local anesthetic properties in a marked degree, and, like some of the other agents, because of this fact, serves to reduce the inflammation in the tissues in the apical space, and causes them to return to a normal healthy condition.

A. H. Peck, Dental Review.

SETTING OF CROWNS.—Dr. Taggart fits gutta-percha onto the post and in the root, and gets a proper adaptation first; then he dries the roots out, and paints the inside of the canal with cajeput or eucalyptus; and he lets that dry a little, and paints the inside of that with chloro-percha; then he paints the gutta-percha on the post with chloro-percha, warms it a little, and drives it home. They have this advantage: They are not set solidly as they are with cement, and possibly the gutta-percha preventing a fracture of the porcelain.

Dental Review.

TIPPING TEETH.—A little practice that has been successful in my hands is in tipping teeth. I do hate to destroy live pulps, and where I find both corners are gone, and the tooth very frail, I grind the surface, beveling from the neck of the tooth down to the cutting-edge of the tooth on both sides. I grind off a little to the cutting-edge, then use thin gold foil, and burnish that to the tooth on three surfaces, stiffen it with solder of 22-carat plate, solder it, and again grind and cement that in place. It looks very well, can hardly be detected from gold filling, and you have an edge that will protect the frail edges of enamel. It is only necessary to break away very little of the frail edge. You can burnish the gold over the frail edges with any amount of assurance, and as long as it stays there it will protect the edges of the enamel.

M. S. Smith, Cosmos.

TO REMOVE WAX FROM THE EAR.—According to the *New York Medical Journal*, Alberto Ricci, of Turin, has ascertained that the solution of hydrogen dioxide possesses the peculiar quality of rapidly disintegrating the obstructive masses of cerumen in the ear. It suffices to pour into the ear a small quantity of the solution, and leave it for a few minutes in contact with the ceruminous plug. The latter is then most easily and safely removed by syringing with water, even though it were a hard concretion.

A NOVEL METHOD OF TREATING EROSION OF THE TEETH.—Dr. A. C. Hewitt, of Chicago, brought a patient to our office recently where every tooth (28) had an eroded surface, labially and lingually. These were all covered with gold crowns about four years ago. All of the anterior teeth were so covered that their faces were exposed by cutting out the gold so that the lady would not be disfigured when she opened her mouth. The case is a complete success. A slight erosion is beginning again on two of the faces, so that it appears that the same agencies are at work again.

Dental Review.

I have been using a preparation of cocaine, for local anæsthesia, composed of 1-200 grain atropine to $\frac{1}{2}$ grain cocaine.

In using this preparation I had an experience similar to that described by the gentleman in the July Journal. I had placed a $\frac{1}{2}$ grain tablet in 60 drops of water and was injecting into gums, when a few drops were reflected back into one eye, which immediately caused the pupil to enlarge; at the end of eighteen hours the pupil was still noticeably larger than that of the opposite eye. The amount striking the eye, figuring from the strength of solution used, would amount to about 1-1,000 grain of atropine.

F. H. Hood, in Ohio Journal.

Some dentists find it difficult to make a smooth model from their impression. If the model is varnished and covered with soapsuds you will get a very fine model by first besmearing with the finger or a camel's-hair brush the surface with a thin coat of the plaster, and then adding the full amount of the plaster required. It is sure to cover every irregularity and to prevent air bubbles, and the skin of plaster is very hard. In mixing, the water should not be added to the plaster, but the plaster sifted slowly into the water as the good housewife sifts her flour.

Atlantic Journal.

RECENT PATENTS RELATING TO DENTISTRY.

- 607211, Artificial tooth, George Buchanan, Philadelphia, Pa.
 607231, Artificial tooth, Charles E. Foster, Washington, D. C., assignor to National Tooth Company, York, Pa.
 607295, Dental instrument, William O. Talbot, Biloxi, Miss.
 608150, Dental plugger, Alden Bush, Elyria, Ohio.
 608984, Dental plugger, Winfield E. Hanson, assignor of one-half to O. M. Shaw, Boston, Mass.
 610840, Dental pliers, Edward H. Angle, St. Louis, Mo.
 610518, Mouth and throat mirror, Henry Bausch, assignor to Bausch & Lomb Optical Company, Rochester, N. Y.
 610717, Inhaler, James M. Munyon, Philadelphia, Pa.
 610775, Tooth-powder receptacle, Wm. S. Thompson, Jr., Woodside, Md.
 610987, Dental tool, Loren E. Hendrickson and C. H. Read, assignors to said Read, C. L. Thomas and O. L. Sturtevant, Ogden, Iowa.

TRADE-MARKS.

- 31936, Soaps, perfumery, extracts and face and tooth-powders, excluding perfumed waters, Court Perfumery Company, New York, N. Y.
 31950, Disinfecting, antiseptic and asepticizing preparations, firm of Carl Raspe, Weissensee, Germany.
 612158, Continuous hot-air syringe and vaporizer, Martin L. Cooper, Modesto, California.
 612106, Pasteurizing apparatus, Adelbert D. Hill, Stenton, Minn.
 612081, Spraying device, Russell B. Williamson, Clifton Springs, N. Y.
 612295, Inhaler, Marvin E. Woodling, Minneapolis, Minn.
 612655, Dental fountain cuspidor, Wm. N. Avery, San Jose, Cal., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.
 612659, Fountain spittoon, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.
 612660, Head-rest for dental chairs, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.
 612724, Thermal dilator, Jonathan R. Hamilton, assignor to C. S. Emery, and A. J. Marks, Toledo, Ohio.

John A. Saul, Solicitor of Patents, Washington, D. C.

EDITORIAL.

CONTENTED WITH MEDIOCRITY.

Some time since, I said to a comparatively young dentist, "You are not in the best of location here."

"No," he replied; "I am not able to pay rent for a better. And I suppose you observe my furniture is not of the best, either; nor my chair, nor my instruments. In fact, my dress is not very professional. But I feel somewhat contented, because I cannot see my way to do better. Perhaps it is about my size, anyhow."

"It may be. We all measure ourselves, and if we do not, others do for us. And to tell the truth," said I, "is the character of your patronage and of your work any better than your appearance and surroundings?"

"Well," he replied, "I have not had the best of opportunities. I went to college without any previous knowledge of dentistry or of requisite studies; so that all through my college course I was at a disadvantage. Then, too, I had few books of my own, and no money to attend Quiz classes, or for other accessory advantages. I wonder at my success in graduating at all. I certainly came through by the skin of my teeth. Under such conditions, I cannot expect the best practice; and I suppose I ought to be thankful for what I have."

Well, what shall we say of this young man? Shall we commend him for his perseverance, or blame him for his present condition?

I think we should blame him more than we should commend him.

1. He should have acquired better preparation for his college course. Though circumstances may have made it very difficult, he had better have spent a whole year, or two years, in alternate work and study, than to have started wrong at college. And a part of that time should have been spent with a good dentist, though he may have had to work for his board, or even boarded himself on potatoes and salt. It might have been wonderfully hard, but the difficulties are of little importance. To accomplish the end in view is the main thing. This done, we

soon forget the difficulties, and perhaps are better off for having had them.

2. And suppose when he was ready in his studies he was not ready financially, should he have ran on at any disadvantage, only so he might get his diploma? Better black boots, shoe horses or dig ditches for another year, than be handicapped at college.

3. Do you know what my impression was of that young man at the time he told me his story? I believe he was made up that way. And I believe the reason there are so many just like him in the profession is because, like him, they are determined to go through on this superficial line. Often, it is not because of unavoidable limited circumstances, so much as because of a disposition to be superficial. They are in nothing thorough, nor patient nor plodding. They are in a hurry to get there, and are not willing to pay the price of the journey.

4. The final results of such a course is a warning against taking it; for such persons are quite apt to remain unprogressive, unprofessional and unqualified. Visit them ten years after they are "established" in business, and they and their office and their work, and their general character and surroundings will be much the same. If, indeed, they have not gone to seed. Progression, aggression, superiority, are unknown to them.

If it had been dire necessity that pinched and hampered, and disabled them in the beginning, and in their subsequent course, we might have some hope for their gradual improvements; for real embarrassments and necessities, and insuperable obstacles make more skilful workmen and better dentists, and surer professional success. Before such a one even gets to college, he shows his grit and thoroughness and push in everything he undertakes. Excuses for unpreparedness are not in his vocabulary, and superficial study and work are unknown to him. Every step is perfected, and every difficulty is overcome as they obtrude his path. The roughness of the way may hinder him, but never appall him, nor cause him to pass round them. He conquers them, and thus makes for himself a path that is sure to lead to success, and superiority of success.

STRENGTH IN STRUGGLE.

There are lives that know nothing of the deep things of real struggle. For such we are not now writing. There are those who know real trouble, and confusion and anguish. Reverses wring from them bitter tears, heartaches and sad despair too intense for utterance. But for even these strength and courage and marvelous relief may come in the darkest and most dismal night, by having unfaltering faith in the final outcome.

As the fire of the furnace brings the glow to the metal, and as the heavy blows of the smith sends out the glowing sparks while the bar is shaped to some useful purpose, so our severest sufferings, "in the furnace of our afflictions," light up our countenance with a glow of beauty, and the blows of the Master make us sparkle with scintillations of His love as He shapes us to His use. During cruel, tragic, malicious trials, it is natural—it is manly—to weep, but if we have the faith of Paul to compare present afflictions with future triumph, we shall weep through smiles as we exultingly exclaim, "Our light afflictions which are but for a moment, works for us a far more exceeding and eternal weight of glory."

That wonderful exclamation of our Saviour in His awful night in the garden, as He saw before Him the scene of His tragic and cruel sufferings, should more prominently enter into our own character. He looked beyond the dark, dismal, dreadful valley of sufferings and struggle through which He must inevitably travel, and which were already wringing from Him a bloody sweat, to the heights of triumph beyond, and exclaimed, "Now is the Son of man glorified!" These very sufferings were to bring Him glory, and the cruel machinations of His enemies were to bring Him triumph. Defeat and death itself were to be to Him His greatest victory. Therefore He endured all with patience, courage and resignation.

So in other lives, there are few marked evidences of power and accumulated wisdom and glowing nobleness of spirit without the struggle that brings discipline, the endurance that brings maturity, and the patience and never-ending perseverance under

difficulties that bring the grace of refinement, calm self-possession and placid loveliness. It may take a whole life to bring us where we are willing to die to what we are that we may live to what we may become, but it is just that abandonment to selfishness, and abandonment to other's good, that brings the very "crown of life," and the triumph that "conquers all things."

Thus, to possess a life that is complete, and a helpfulness to others that is unselfish and abounding, there must be mental and moral, yes, and physical courage that comes only from the refining elements of struggle. The superficial world may pity such a one as he goes into the fiery furnace—lost to the present, and lost to their distorted views of life; and as they draw the curtain of disgust and forgetfulness, they may declare him lost forever; but as "the refining fire goes through the soul it illuminates the whole," and there comes a life proof against even fire. There is a renovation and a strengthening that gives stamina and endurance and courage, character and power and victory.

Those who have never come into such a new life by dying to the butterfly life of self-ease, self-gratification and selfishness cannot understand the virtue of struggle, nor appreciate the transformation of the new life it brings. They do not know how immortals are made. But he that has buffeted the elements knows from whence this strength comes. The frivolous may say that he has lost the pleasures of the world, but he can see beauties and taste luxuries they never dreamed of. The selfish may say that he has thrown away all that is valuable to gain an ideal character, but this transformed man revels in the riches money can never buy. The voluptuous may laugh at his asceticism, and pity his austerity, but he lives a life so abounding in new pleasures that the groveling and sensuous and thoughtless can never know.

THE FAMILIARITY THAT BREEDS CONTEMPT.

The relation of physician to patient, and patient to dentist, is a delicate one. It is of necessity one of familiarity and confidence. But neither the physician nor the dentist should assume

the familiarity that belongs only to an intimate friend, and for either to take such freedom is presumptuous, and is generally repulsive and repellant. Especially every lady has reserved rights, private seclusiveness and delicate feelings that are peculiarly her own. They are sacred, and no professional relationship should be allowed to intermeddle with them.

It is still worse to attempt to overstep the bounds of delicacy and propriety in manners, position and action. A coarse boldness, a blunt demeanor, a vulgar familiarity of position, which does not respect the delicate sensitiveness and the finer sensibilities and person of the patient, is an insult that no gentleman will attempt. Low joking, jesting, fondling, flattering and indecent bearing, should have no place in a dental office. They may not be palpably resented, but many a good patient is lost for future treatment, who passes out silently never to return.

SCIENCE AND ART.

It is becoming somewhat frequent for a certain class of "advanced" writers, speakers and practitioners to speak of "the art and science of the dental profession," thus making quite a distinction between the mere skilful operator and his learned confere. Our cobblers and humble mechanics in the profession are supposed to know little of the science, and to be bunglers in its art; while our "learned scholars" are assuming to be the aristocracy of its science and the monopoly of its art. Perhaps both have something to learn.

In using words, it is well to know strictly their meaning. The skill of doing is an art; the classification of the principles on which the art is based and made available, is its science. Science is not only knowing things; it is so stringing them together—so arranging facts—as to make them available for the purposes of art—their application is the art. Thus science is said to be the theory, and art the practice. Education is an art, so is the power of the sculptor, the painter, the orator, and the dexterity of filling a tooth or constructing a bridge.

Art undirected by science, as education, undirected by wis-

dem; may go widely astray in its application; so that the dexterous man, ignorant of the principles that should govern his skill, may do great damage. On the other hand, an astute scholar in the science of physics may be a blundering child in the application of his knowledge.

As the art of knowing must be manipulated by the science of culture, and as the art of education must be matured by the science of reason, so the art of the skilful workman must be based on the application of the principles of the science of his manipulations.

Thus, to make a professional man, or a successful workman in a profession, science and art must be intimately blended; the head and the hand, the culture and the skill, the science and the art, must work together. In no other way can we be entitled to the name of a "learned profession."

Why be a nonentity, when God has put within you great and noble faculties which should make you a power? Come, wake up, straighten up, walk up to your task and do your life-work like a man. Take the place and the work and the great responsibilities God has assigned you, and prove your metal, show your importance, be true to yourself and your mission, and submit yourself to the moral and physical discipline that shall strengthen your weakness, correct your faults, brush aside your hindrances; that shall enable you to distinguish yourself in some specific work. The character and the results of life are largely in your own keeping; make them noble and useful and prominent. Come, look above you, and beyond you, and within you for the elements of success, and then push on to some definite attainment. A fool in most things may be a wise man in something. A failure for years may be a success finally. A vagabond and a dead beat sometimes wakes up to be a power in the world.

Be strong and courageous, be aggressive and self-reliant, be the embodiment of intelligent zeal and self-discipline. And verily you shall grow and succeed and be honored.

BRIEFS.

Show me a young man who is noted for standing on the street corners, or loafing about stores or saloons, and I will show you one who must mend his ways, or go to the dogs.

A business man who is not in business in business hours will soon have no business. Patrons will take no excuses for either absence or lack of preparation. Your office may be full of excuses, but it will lack patronage.

If you please your patrons their neighbors will find it out. If you do not please your patrons, their neighbors and the whole public will find it out, and avoid you. Thus we make reputation for good or for bad.

Whether business is rushing or slow, let everything about you show readiness, tidiness, promptness. This will give dispatch to a busy business, and profitable leisure in the absence of it. To fool away the time of a customer because you have not another in waiting, or to give the impression of slighting your work, or even hurrying over it, because others are waiting, is sure to damage your business. Accomplish promptly, but perfectly everything you undertake, and this will give a business atmosphere to your office that will bring business if you have it not, and hold it if you have it.

Aim to have the busiest office in town. Someone's office must be the busiest. Why not yours? The best methods and the best workmanship will do it. If yours are not as good as your neighbor's, it will be well to find out where the trouble is, and try to improve on your past efforts. The proof of superiority is generally seen in results.

Collect promptly. Your patrons will not be offended, if done in a gentlemanly, businesslike way, and they will be more apt to come again promptly when occasion requires it. The fact that a man owes you will often take him to one he does not owe. A reputation for promptness in collections and payment of debts—better still, having no debts to pay—is one of the best traits in a business character. It even gives confidence in your skill, in your integrity, and in your honor as a gentleman.

Hereafter the women of Russia must do without corsets. The Russian Minister of Public Instruction has issued a decree absolutely prohibiting the use of them on the ground of public health. This is an example of "paternalism" that Americans might well imitate.

That man who cannot measure himself by his accounts will soon have no accounts as a measure. Irregularity and indefiniteness in his accounts will soon show irregularity and indefiniteness in every measure of his character.

If we would have more, we must appreciate what we have; for using well what we have fits us for well using more. Men are poor—not so much because they have nothing as because they do not use the crumbs which are going to waste. They value dollars but despise pennies. They would consider it profligate to while away a whole day in idleness, but will spend minutes and hours listlessly without considering their value. Almost any of us, by picking up the crumbs of time and money, and opportunities, and using them to the best advantage could gradually exchange rags for good clothes and a hut for a palace.

The word "impossible" has its origin in ourselves. To him who pushes doors will open, to the deserving opportunities will come. "As a man thinketh so is he;" for our estimate of ourselves gives our status. This is the measure of our deserts, our ambition, and our power. To the "I can't" the simplest achievement is unattainable; to the unthinking the most common problem of life is intricate; to the unambitious nothing is possible. Believe in yourself. Deserve success, and then press your way to achievement. The multitude always give way to the persistent. The best society honors pluck, and the chief of society crowns the victorious.

The trial of a doctor's suit was published in a newspaper some years ago, in which a witness was called for the purpose of approving the correctness of the bill. The witness was asked by the lawyer whether the doctor did not make several visits after the patient was out of danger? "No," replied the witness, "I considered the patient in danger so long as the doctor continued his visits."

FOR OUR PATIENTS.

TWO GIRLS TRAVELING AT \$300 A DAY.

Three hundred dollars a day is what it is costing two young English ladies to tour this country. Of course they are doing it in great style, somewhat in the manner in which some of the ancient potentates were wont to travel, except that these girls have all the modern conveniences.

They are traveling in a special car fitted up so as to be a veritable palace on wheels. They have with them their own porters, cooks, coachmen and maids, and their car has a well-stocked refrigerator and pantry.

The names of the girls are Miss Dollie Richards and Miss Kate Roberts, of England. Miss Richards is the daughter of C. M. Richards, general manager of the Dominion Steamship Line, running steamers between Liverpool and Boston. Miss Roberts is his niece.

Both girls are handsome, stylish, and vastly interested in everything they see. Their credit over here is unlimited, and all their wants are gratified in a regal manner.

Their car is known as special Fitchburg car, 200, and belongs to the President of the Fitchburg Railroad.

The car was specially fitted up and decorated for their use. Muslin curtains overhang the windows, and palms spring from Japanese jardinières on each side of the door leading into the reception or drawing-room. A bookcase holds a complete assortment of books on the United States, while rugs cover the leather divans, and gorgeous pillows are scattered artistically about.

Charming pictures hang on the walls; soft cushions lie on the inviting-looking couches, and a casual glance at the interior of the car gives one the impression that it is the temporary home of refined and cultivated women.

The two young ladies have already seen everything that is to be seen East, and are now traveling in Colorado. After they have been to California they will return to Boston, from whence they sail for Europe.

New York World.

Try snuffing powdered borax up the nostrils for catarrhal "cold in the head."

LOST OPPORTUNITY.

Mrs. S. M. Walsh.

The things I have done that I ought not,
 They pain me and harass me sore;
 But, ah me! the things that I did not,
 I think they discourage me more.
 Oh, the dear opportunity, never again
 To await and invite me! I mourn it in vain!

The word that I ought to have spoken,
 The deed that I ought to have done,
 Are sorrowful wraiths, and they whisper,
 "No grief nor remorse can atone!
 It was yours only once—that sweet comforting word,
 Only once that kind service to render your Lord!"

Alas! could the "dead past" but bury
 Forever its dead from our sight!
 Our hearts are the tombs that they rise from,
 To meet us by day and by night;
 And our lives move along to the solemn refrain,
 "Opportunity lost will return not again!"

ONCE IN A WHILE.

It is easy enough to be pleasant,
 When life flows by like a song;
 But the man worth while is the one who will smile
 When everything goes all wrong.
 For the test of the heart is trouble,
 And it always comes with the years,
 And the smile that is worth the praises of earth
 Is the smile that shines through tears.

It is easy enough to be prudent,
 When nothing tempts you to stray,
 When without or within no voice of sin
 Is luring your soul away.
 But it's only a negative virtue
 Until it is tried by fire,
 And the life that is worth the honor of earth
 Is the one that resists desire.

By the cynic, the sad, the fallen,
 Who had no strength for the strife,
 The world's highway is cumbered, to-day—
 They make up the item of life.
 But the virtue that conquers passion,
 And the sorrow that hides in a smile,
 It is these that are worth the homage of earth,
 For we find them but once in a while.

Selected.

DO YOU KNOW HOW YOU CAME TO HAVE TEETH?

When you were a little baby you had no teeth. The gum (do not pronounce this goom) or flesh covering the jaws, was smooth and shiny, and you could not have hurt a person's finger had you tried to bite it. But when you were six or eight months old, two little white teeth came up through the gum on the lower jaw and a week or two after that two larger teeth peeped out of the gum on the upper jaw. There were four teeth right in front, and you took delight in biting fingers and thumbs and rings and everything you could get into your mouth. These were your central incisors, and you seemed to be very proud of them. A little later, when you were eight or ten months old, two more teeth appeared in both the lower and upper jaw, one on each side of the other teeth. These were the lateral incisors. Now you could make your mamma jump and say: "Ouch!" every time you bit her finger. And do you remember how you cooed and laughed about it?

You had been living mostly on milk, but when you were about one year of age you wanted to eat bread and such things, and needed more teeth to chew with, so four large double teeth came through the gums that you might chew the bread. These came in one on each side of the teeth already in your mouth, but there was a little space left on each side of the mouth between the lateral incisors and these double, or first molar teeth.

Now what do you suppose these spaces were left for?

Let us see. About six months after that, when you were about a year and a half old, four more teeth came through the gums, two in the lower and two in the upper jaw, and filled up these spaces. These were the cuspid teeth, and the spaces had been left for them. Now you were getting to be quite a child, and you wanted to eat meat and other things like your father and mother, and so when you were two years old four more large double teeth came into place, one on each side of the upper and lower jaw, and just back of the other teeth. These were the second molars, and then you had in all twenty teeth in your mouth; ten in each jaw. Now with twenty good, sound teeth a child can chew all the food he ought to eat, and nature thought this was enough until the child should grow several years older. So it completes the temporary set, or "baby teeth" as they are often called.

These are termed the "temporary teeth" because they last only a temporary or short time. After awhile they all come out

and larger and stronger teeth grow in their places. The shedding of the teeth is an interesting process, and we shall tell you all about it at another time.

Information.

THE POWER OF IMAGINATION.

The fact that the throes of the imagination under great nervous excitement often produce a corresponding physical frenzy was illustrated recently in the case of a man who had gone to sleep with his artificial teeth in his mouth.

Waking suddenly with a choking sensation he found his teeth had disappeared, says the *Philadelphia Record*. He looked in the glass of water where they were usually deposited, did not see them there, and realized that they must be far down his throat.

Choking and struggling, he hammered on the door of a friend sleeping in the house, who, seeing his critical condition, vainly endeavored to draw the teeth out of the sufferer's throat. He could feel the teeth, but had not the strength to extricate them. He ran for a blacksmith, who lived a few doors away, but the blacksmith's hand was too big to put into the man's mouth.

A doctor had been sent for, but he was so long in coming that the victim of the accident seemed likely to die of suffocation before the physician arrived. A little girl of ten years was brought, under the impression that her small hand might reach the obstacle and withdraw it, but she got frightened and began to cry.

The sufferer became black in the face, his throat swelled out, and his friends expected every moment to be his last, when finally the doctor arrived. He heard the history of the case, saw that the teeth were not in the man's jaws nor in their night receptacle, felt the throat and chest of the sufferer, and cast his eyes seriously upon the floor.

There he saw the whole set of teeth. He adjusted them in the jaws of the patient, told him to breathe freely, and every symptom of suffocation disappeared.

Motor carriages are coming into very general use in France, and are a new feature in the autumn military maneuvers. Their success is partly due to the excellent roads in France, an average speed of thirty miles an hour being attained on the road of Champagne.

SALARIES OF ROYALTY.

One hears from time to time such wild shots as to the incomes of different members of the English royal family that a few reliable figures are never without interest. The Duke of Edinburgh, for instance, whose financial affairs have so often been made the subject of gossip, had an allowance of \$75,000 a year on attaining his majority, and another \$50,000 a year on his marriage, but voluntarily ceded this latter item on succeeding to the duchy of Saxe-Coburg-Gotha.

The Duchess of Edinburgh brought her husband a dowry of \$1,500,000, and an annuity of \$56,250, which goes to her children at her death. The Duke of Connaught has \$125,000 a year, and his pay as general is nearly \$15,000. The Duchess brought a dowry of \$75,000, and the Duke settled \$7,500 a year upon her at her marriage.

The Queen's daughters, Princess Christian, Princess Louise and Princess Beatrice, all have \$30,000 a year, and each had a dot of \$150,000. Prince Christian has \$2,500 a year as ranger of Windsor Park, and the Marquis of Lorne \$6,000 a year as governor of Windsor Castle.

The Duke of Cambridge has \$60,000 a year and Gloucester house rent free, which is equal to another \$15,000 a year, and, although the rangerships of the Green Park, St. James, Hyde and Richard Parks are altogether worth only \$550 a year, the residences which go with them are worth a couple of thousand pounds a year. While the Duke was commander-in-chief, as well as colonel of the grenadiers, he drew about \$32,500 a year from the War Office as well.

PATERNAL FORESIGHT.—“Why is it you sign your son's name to that article instead of your own?”

“Well, you see, it is intended for a magazine.”

“What of that?”

“Why, when the magazine gets around to the point of printing it I will be too old for it to be of any service to me, while my boy, who was deemed old enough yesterday to appear in trousers for the first time, ought to be just on the threshold of a literary career, where it may be of some help to him. *Chicago Post.*”

WASP STINGS AND COCAINE.—It acts apparently not only as a temporary local anæsthetic, but seems also to have the power of destroying the poison of the sting.

FACTORIES WITHOUT CHIMNEYS.

In rebuilding a large machine shop recently it was decided to substitute for the usual tall chimney a large fan to furnish the necessary draught for the boilers, and the innovation has been decidedly successful, not only on account of doing away with the tall and unsightly chimney, but also in securing greater economy in fuel.

The plant where this experiment was tried has three boilers aggregating 260 horse-power, and directly above them was mounted a fan connected direct with a 5x4 double-cylinder engine. The wheel of the fan is 54 inches in diameter, and as it can be run at any desired speed, it provides a draught quite independent of the fire.

It is here that the principal saving is effected, inasmuch as it is possible to use a much cheaper grade of coal, and in a test made for the company the annual consumption and cost of coal was computed as follows: With the ordinary form of chimney—Cumberland coal, 1,624 tons at \$3.65, \$5,929. Using the blower—Mixture of Cumberland coal and yard screenings, half and half, at \$2.85½, \$4,995; showing a difference of \$934.

The cost of operating the fan was stated to be \$183 per annum, so that the net gain was \$751, a sum greater than the entire cost of the mechanical draught apparatus. The stack used is of metal and barely rises above the roof, according to photographs of the works, and from many standpoints the new system is considered a great improvement. *The Manufacturer.*

THE ASEPTIC INFLUENCE OF COLD.

An English journal says that it is highly probable that microbes do not exist in polar regions and at great elevations. Most probably all of them are killed by intense cold. It is for this reason that frozen meat can be preserved fresh for an indefinite time. The fossil mammoths which have been discovered in the banks of Siberian rivers, embedded in ice, are often quite undecomposed, and their flesh is eaten by dogs. Prof. Tyndall experimented on the vitality of microbes by exposing solutions of sugar to the air on the higher summits of the Alps, where he found that fermentation did not take place, whereas at lower levels, where the temperature was higher, the liquids quickly became turbid, owing to the presence of microbes. Dr. Nansen furnishes a confirmation of the truth of the above statements.

He informed the writer that as soon as his companions returned to Norway after their sojourn in the extreme north they all caught cold, but had been entirely free from this ailment during their prolonged absence. The inference is that reproduction of the catarrh microbe had been prevented in the severe cold of the polar region. That cold, while repressing activity, does not always kill pathogenic microorganisms we know, since virulent typhoid bacilli had repeatedly been found in ice.

Medical Record.

SAID BY EXPERIENCED MEN.—The waste of life is greater than its accumulations.

Mark Hopkins.

The surest way to wealth is to create it—not to accumulate what others have created.

Leland Stanford.

You'll never track me through the world by the quarters I've dropped.

C. P. Huntington.

Saving is the secret of wealth.

Albert Miller.

I never make a loan influenced by other considerations than the probability of the payment of the interest and the return of the principal.

D. O. Mills.

THE MATTER OF AN ALLOWANCE.—“My dear,” whispered the young man, “as we are so soon to be married, we should take a practical view of life, and profit by the mistakes of others. For instance, there is the subject of a regular allowance every week for spending-money, you know.”

“Oh, I've thought of that,” she replied, sweetly.

“Have you?”

“Yes, indeed. Hundreds and hundreds of times, and lately I haven't thought of much else.”

“Eh!”

“Yes; your income is \$2,000, isn't it?”

“Yes; and I want it to go as far as possible toward your happiness.”

“Of course. Well, I've talked it over with mamma, and she thinks an allowance of \$1 a week will be plenty.”

“Indeed!”

“Oh, yes; you can walk to the office, you know, and carry your lunch, you know, and so you can use the whole dollar for cigars and neckties and things.”

When you have placed your standard high, and your only dread is the fear of committing a cowardly act, you will be delivered from all lower fears.

DENTAL BRIEF.

VOL. IV.

FEBRUARY, 1899.

No. 2.

ORIGINAL COMMUNICATIONS.

ACCIDENTS UNDER ANESTHESIA.

H. G. Dunbar, D.D.S., Stellarton, N. S.

Few practitioners have not been placed in the position where the timely application of resuscitating agents meant the saving of a life, and all realize that the use of these agents must be made without the delay of resorting to notes or books of reference. Accidents under anesthetics may occur at any stage of the operation, and under any of the anesthetics in general use. The general anesthetics principally used in dental practice are nitrous oxide, ether and chloroform; cocaine or eucaine being the bases of most of the local anesthetics.

With the use of even as safe an anesthetic as nitrous oxide fatal accidents are recorded. The heart is rarely the seat of any tumultuous action as the result of the administration of nitrous oxide, although its action may grow gradually weaker. To prevent any complications as the result of hallucinations of the patient, it is imperative that a third party be present during the administration. Among the phenomena of nitrous oxide anesthesia may be noted opisthotonus, paralysis of the bladder and involuntary action of the urinary and rectal secretions. This may be avoided by a little forethought of the operator. Where syncope occurs under nitrous oxide the patient should be inverted and aromatic spirits of ammonia, gtt. x to xx, administered.

Ether and chloroform are the agents commonly used for the major dental operations. The latter is practically contraindicated in dentistry as an anesthetic. The use of ether in healthy individuals is not attended with much danger. Unlike chloroform, there is generally warning when the patient passes into a dangerous condition. If the anesthetic is pushed beyond the stage of deep anesthesia, the breathing will grow gradually weaker, and finally cease. Should breathing cease during the second

stage, when the cornea is still sensitive, there is not much danger, as the stopping is merely a reflex action, and is easily started. Where we have heart failure under ether we should invert the patient and resort to artificial respiration. Nitrate of amyl, gtt. v, may be given. Ammonia (aqua or carb.) may be held to the nostrils, or the nitrate of amyl may be use in the same manner, but always with caution. Galvanism is of some use.

On account of the similarity of their action, alcoholic stimulants should not be given when a patient is sinking after ether has been administered. Probably the best heart stimulant is nitroglycerine, gr. 1-100. Digitalis is practically useless on account of the slowness of its action. The rapid reduction of temperature may be the cause of alarming symptoms where ether is administered. The two great dangers in etherization are apnea and the invasion of the medullary tract.

Ether has been administered per rectum, with the advantages of (1) preventing stertor, (2) preventing irritation of the air passages, (3) less danger of asphyxia, (4) quick recovery, (5) nourishment may be given previous to the administration, (6) liability to vomiting is lessened. The dangers in the use of this method are over distention of the bowels, and the freezing and subsequent ulceration of the bowels as the result of rapid evaporation.

In the use of chloroform we must be prepared for an accident from the first inhalation to the last, and even longer. Chloroform as an anesthetic, though generally contraindicated in dental practice, is preferable in the following conditions: (1) Chronic endonarteritis in advanced years, (2) chronic inflammatory affections of the respiratory tract and advanced pulmonary diseases, (3) acute and chronic renal diseases, (4) old age. Chloroform is contraindicated in: (1) surgical shock, (2) epilepsy, (3) hydrocephalus, (4) tendency to syncope, (5) fatty heart and chronic valvular diseases, (6) acute alcoholism, (7) fatty liver, (8) a patient who is already under the influence of chloral.

Vomiting after chloroform anesthesia may generally be prevented by the use of strong acetic acid. It may be poured on the mask or inhaler as soon as the patient begins to recover. The same agent in hot water has been of good service in hemorrhages.

Coughing at the outstart of the administration may aid materially in getting the patient under the anesthetic.

All artificial dentures should be removed before beginning administration. Probably the most suitable time for the admin-

istration of chloroform or ether is at 8 o'clock in the morning, on an empty stomach, or at 2 o'clock, after the patient has had a light breakfast and no dinner.

Accidents have occurred, and will occur, and the practitioner can only endeavor to judiciously use his anesthetics under the most favorable circumstances he can secure, relying on the scientific application of resuscitating agents where unfavorable symptoms are present.

A SESSION OF THE ODONTOLOGICAL SOCIETY OF WESTERN PENNSYLVANIA.

Dr. G. Layton Grier.

The Odontological Society of Western Pennsylvania began its annual two days' session at 10.30 o'clock on Tuesday, December 13th, 1898, in the Methodist Episcopal building, 524 Penn avenue, Pittsburg, Pa. President Dr. F. H. Horner was in the chair, and Secretary D. W. E. VanOrsdell recorded the society's transactions.

About fifty dentists from various parts of the country, but chiefly from Pittsburg and the surrounding territory, were present. It was considered an important convention, and the discussions taken up were of much value and interest to the profession.

The forenoon was taken up with the transactions of purely routine business. At 1 o'clock the really interesting part of the program was taken up.

The first paper was by Dr. Edward C. Kirk, of Philadelphia, "The Bacterial Factor in Dental Practice." This lecture was illustrated by lantern views. Following him came Dr. Robert Milligan, of Pittsburg, "Anomalies of Antrum of Highmore," also illustrated.

The session in the evening began at 8 o'clock, and the following papers were read: "Prophylaxis, or Anticipating Dental Caries," by Dr. H. C. Register, Philadelphia; "Demonstration on the Method of Porcelain Inlays, as Given or Originated by Dr. N. S. Jenkins, of Dresden, Germany," Dr. J. Harry Deems, of Baltimore, Md.

Wednesday's program was as follows: "When Doctors Differ Who Shall Agree?" a clinic paper, illustrated, Dr. H. H. Harrison, Wheeling, W. Va.; "Pulp Capping with Iodoformagen Cement," Dr. W. E. Kiner, Wilkinsburg, Pa.; "Porcelain Bridge, Using Electric Furnace," Dr. Grant Mitchell, Pittsburg, Pa.; demonstration, "Restoring Broken Down Roots," Dr. F. D. Murto, Pittsburg, Pa

TOO MANY DENTAL REMEDIES.

It is questionable if there is any greater error committed by dentists than in the practice of filling cabinets and laboratory shelves with innumerable remedies. It is proper to have a sufficiency of remedies to meet requisite demands, but excess of remedies often causes confusion and failure to treat and cure disease successfully. I can produce a list of several hundred remedies culled from a half dozen dental journals during a period of less than twelve months, and more than one hundred of them recommended for treatment of a single disease. Unreasonable in the extreme. What can be the necessity for so extended a line of remedies for treatment of so limited a range of abnormality as pertains to the dental structure? The scope or range of territory for authorized dental treatment is limited, and very definitely subscribed, so definite that no one reasonably prepared or at all advanced in practice need fail to recognize the boundary limit.

There is just so much of physical disturbance that calls for treatment at the hands of dentists. If we digress and venture beyond the line of limitation in our desire for expansion and notoriety we will act unwisely, and trespass upon territory justly claimed and occupied by the medical profession, and in a majority of instances will fail to effect best results for our patients. The more strictly we confine our diagnosis and treatment to the physical disturbances legitimately within the range of our sphere of action as dentists the better for those we serve and the greater will be our reward in appreciation for service rendered.

There is such a thing as overreaching the mark, venturing too far, and claiming too much, and dentists, as daily evidenced, are not less addicted to the error and weakness than other people.

I think it very probable that a dozen judiciously selected remedies would be quite sufficient to meet the every-day demand of busiest dentists, patients would be more humanely and better served, and the profession would be moving on a higher plane of equity, advance and usefulness.

B. F. Arrington.

The Chicago Dental Society will, on Friday and Saturday, February 3d and 4th, celebrate its thirty-fifth anniversary by holding a two-day meeting for clinics, papers and discussions, ending with a banquet Saturday night. A cordial invitation is extended to the profession to be present.

Joseph W. Wassall, Sec. Com. of Arrangements.

NAFTALAN.

Dr. Rosenbaum, of St. Michael's Hospital, Tiflis.

The medical ointment naftalan is procured from a special and peculiar crude naphtha, differing considerably from any other raw naphtha in its physical and chemical properties. In spite of a high specific gravity of 0.960, this naphtha does not contain any resinous products, dissolves completely in ether, and burns with an agreeable aromatic smell, without leaving any residue. The flash-point of this crude naphtha is beyond 140° , and the point of freezing is 20° C. In the fractional distillation of this naphtha, it does not give off light oils, such as benzine, kerosene (petroleum), etc., but immediately as first product (distillate) a heavy oil with a specific gravity of 0.890 is passed over. It can be distilled to dryness without noticing a trace of paraffine.

The place where this peculiar naphtha is found is situated in the Caucasus, at the foot of the Armenic Highlands, and has the Tartaric name "naftalan." This place is also frequently called the "Holy Bath," because during the three hot months, since time immemorial, five to six hundred invalids come yearly, even from far distances, to bathe here in naphtha, seeking cure for all sorts of affections, more especially of diseases of the skin, wounds, rheumatism, gout, etc. The street hawkers of Persia and Asia Minor have always sold the naphtha as a remedy for men and animals.

Naftalan is an extract of this special crude naphtha, and contains the undoubted healing properties of the same in concentration.

This ointment and the oil used with it are prepared without employing any acid or free alkalies, and without admixing any animal or vegetable fat.

The ointment is of stiff consistency, but can nevertheless be easily smeared; it is absolutely neutral, almost odorless, and does not undergo any change, even if kept for years.

The high melting point of this ointment, which is 60° to 70° C., is of special importance, as it will therefore not liquefy at any body temperature; it covers securely and well, and retains its stiff consistency even in the highest summer temperature. The ointment has, when viewed in reflected light, a dark color; and in a transmitted light, a darkish yellow, clear and shiny appearance, and does not leave any stains on the linen after washing.

Naftalan does not mix with water and glycerine, but mixes

easily with fat, and is soluble in ether and chloroform. As it never decomposes or splits up, it is excellently suited as a basis for ointments, more especially as it easily mixes with other ingredients, and, contrary to vaseline, is easily and quickly absorbed by the skin.

Naftalan shows strong antiseptic action, in so far that bacteria and their spores cannot exist in it. These are, in short, the so far known properties of the remedy in question. I suppose, however, that still further, up till now unknown, factors will come into consideration, explaining the intense, and in some cases unique, curing effect of this ointment.

Naftalan has been used extensively in St. Michael's Hospital, Tiflis, during the months of March, April and May, with the following results:

(1) The remedy proved completely harmless, as I have never noticed any damaging consequences or by-effects.

(2) It possesses wonderful soothing properties upon burns of the first and second grade, thereby preventing inflammation, and excels, therefore, in this respect, all hitherto known remedies.

(3) It acts excellently in various diseases of the skin, especially in acute and chronic eczema, pityriasis, seborrhœa capillitii and psoriasis, in which cases the remedy produced a marvelous healing effect, even in cases where all other remedies recommended by science had failed.

(4) It favorably influences the progress of the disease in erysipelas of the face, checking the progressing inflammatory process and reducing the temperature to normal on the second and third days, the patient thereby feeling very well.

(5) It develops an antiseptic, anti-inflammatory action, and accelerates the healing process in inflamed wounds and abscesses.

(6) It is soothing, is readily absorbed, and heals quickly in cases of bruising and sprains, even of long standing.

(7) In rheumatic and gouty pains the patients experience quick relief of the severe pains, and if its use is continued, a complete cure is effected.

(8) It has reducing and soothing effect in cases of epididymitis, buboes and inflamed lymph glands.

The best method to use naftalan is to spread a layer as thick as the back of a knife on linen, and cover the diseased part with it; or the ointment may be placed directly on the diseased part, and then covered with linen or cotton wool. Seeing that the ointment is quickly absorbed by the skin, it is recommended to use it twice a day.

THE TEETH OF ANIMALS.

A. H. Thompson, D.D.S., Topeka, Kansas.

The teeth of most animals are very different in shape from those of man. The exception to this rule are the big apes, gorilla, chimpanzee, orang-otang, etc., which have teeth just like those of man in shape and number, though much larger and coarser, as the ape uses the teeth with more force than man does. Some of the lower monkeys have teeth which are somewhat like those of man, but most lower animals have teeth that are very different from his in form and size.

Even the lowest animals, the invertebrates (animals without a backbone), have some kind of teeth in most species, though not all. In the sea urchin, for instance, there are five chisel-shaped teeth arranged in a pyramid with the points lying together. These points just protrude through the center of the round shell, and are worked by powerful muscles to cut shells and rocks and food substances. Some insects and the crabs and lobsters have teeth in the gizzard or stomach, for grinding food. The bivalve mollusks have no teeth, but the univalves and the cuttlefish family have teeth on the tongue, a strap-like organ called the odontophore, which is worked back and forth like a ribbon saw. The snail saws off plants with a clean cut with his numerous teeth.

The fishes and reptiles usually have single, pointed, cone-shaped teeth for seizing prey. There are various forms of teeth among fishes, however, as the sharp, triangular teeth of the shark, the flat pavement teeth of the rays, the rounded crushing teeth of the wolf fish, etc. Most reptiles have single-pointed teeth, as in the lizards, alligators, snakes, etc. The poisonous tooth of the venomous serpents is rolled together so as to form a regular hypodermic needle to inject poison. Some teeth of the fishes and reptiles are hinged so as to press down when prey passes over them, and then spring up to hold it. The teeth are usually united solidly to the jaw, anchylosed, as it is called, and sometimes set in sockets, as in the crocodiles.

In the lower mammals, the duck-bill mole of Australia has horny instead of calcified teeth, as most mammals. The sloths and armadilloes have simple teeth of round, cylinder form, without enamel. The insect-eating animals, as the hedgehog, shrews, moles, etc., have molar teeth with long, sharp cusps for crushing the hard covering of insects. The whalebone whale has "baleen" or whalebone hanging down in great bunches from the sides of

the upper jaw, which fringes out to strain small sea animals from the water. The narwhal has but one tooth, a long, twisted incisor, projecting from the left upper jaw. The walrus has the upper canines projecting like long tusks far below the lower jaws, to use as weapons and implements. The rodents—the rabbits, beaver, squirrels, rats, mice, etc.—have two long incisor teeth in each jaw, which are chisel-shape, for cutting purposes. The beaver cuts down large trees with his chisel teeth to build his dams. Squirrels cut the hard shells of nuts; rabbits cut bark and grass, etc., with these teeth.

The plant-eating animals—the horse, cow, deer, etc.—and the rodents, have peculiar molars which are kept rough by wear to grind vegetable fibre. The jaw is loose in the joint, to allow of lateral motion to grind food. On the contrary, the flesh-eaters—the lion, tiger, cat, etc.—have a mere hinge-like joint of the jaw, to permit of but one motion, opening and shutting, which compels the teeth to pass each other with a shear-like motion, to cut flesh. For this office the teeth of the carnivora are raised into long points and blades. The long canines of the lion and other cats are well known as effective weapons for seizing and tearing animals they kill for food.

Between the herbivora, the plant-eaters, and the carnivora, the flesh-eaters, there are many intermediate forms which subsist on a mixed diet and have teeth between these two extremes. Thus, the dog is both flesh and plant-eater, is omnivorous, as scientists say, and so has more teeth than the cat, and the points and blades are shorter and more rounded, for grinding vegetable food. So are teeth of bear and other omnivorous animals. The molars of man have low, rounded tubercles, which show that he, too, must live on a mixed diet.

Thus there is great variety of teeth throughout the animal kingdom, but all are marvelously adapted by evolution to the purposes which called them into existence.

The teeth are used for many purposes aside from eating. Would you be surprised if I should tell you that they are sometimes used as tools and weapons? They are, and we will talk about that next time.

In comparing ourselves with those below us, we naturally feel our self-importance—we are monarch of all we survey. But when we look above us, and see the mighty works and intelligences and powers just beyond our reach, how insignificant we appear.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. Harry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.]

Question 17. *Do you deem it advisable to seal arsenic in a tooth with sandarac and cotton?*

I prefer to use temporary stopping where it is possible.

Dr. Howard E. Roberts, Philadelphia.

I use equal parts of arsenic, cocaine and iodoform, and frequently seal it with sandarac and cotton. As arsenic is usually used, it is not advisable.

Dr. J. A. Libbey.

When the dam can be applied and the application of arsenic can be sealed in with cement or gutta-percha, I deem that the best practice and follow it out; but I do seal arsenic in cavities sometimes with sandarac and cotton.

Dr. W. T. Tracy, New York.

No.

J. P. Grey, M.D., D.D.S.

There is never any objection to this method in grinding surface cavities if on approximal surface, and the cervical margins carefully protected with a rope of sandarac and cotton, and the cavity then sealed with it. I have found nothing better in a practice of twenty-eight years.

Dr. G. F. Keesee, Richmond, Va.

Question 18. *Do you use Shryer's method of sodium and potassium for cleansing putrid pulp canals?*

Yes, but consider J. E. Ward's tubes more convenient. I always use 25 per cent. pyrozone in connection with it, and consider it the best method for bleaching and cleansing.

Dr. J. A. Libbey.

No.

Dr. J. P. Grey.

No.

Dr. G. F. Keesee.

The quickest and best treatment for putrid pulp canals.

Dr. Harbeson.

Question 19. *A little girl of three years has been brought to me for advice. The child has spoken but one word, "mamma," and uses that word promiscuously. She seems to understand every word spoken to her. Her parents and rest of family seem to be healthy. The child's lower jaw droops slightly and there is such an excessive flow of saliva that she has to wear an oilcloth apron. Her teeth are*

badly decayed, and she is so timid that it is impossible to examine her mouth. She cries a great deal, often crying herself to sleep. Otherwise there is no indication of any trouble with her teeth. Is the child's suffering caused by her teeth? Would the condition retard her speech? Would I be justified in anesthetizing the child and operating?

It is impossible to diagnose such a case a thousand miles away, or even in the next room unless all the facts be known. The case mentioned presents many difficulties. It is possible that the teeth are the cause, but I am inclined to think that the origin is systemic. It is also possible that she is a "mouth breather," in which case examination should be made for "adenoid growths." At three years of age she should have all of her deciduous teeth, and I can see no reason why these should be the cause of the trouble. I should not consider the dentist justified in placing the child under an anesthetic, but would prefer to have her examined by a laryngologist for nervous conditions.

It is quite difficult from meagre history of case described to give more than a very general suggestion as to treatment. If the teeth are badly decayed it is more than likely that the child suffers at times from pain due to that fact. I should not consider it justifiable to anesthetize the patient in order to perform ordinary dental operations until I had exhausted the usual methods of dealing with her timidity, which can nearly always be overcome by the exercise of intelligent diplomacy and suggestion.

Her inability to talk and to properly control the function of the lower jaw, as well as the excessive flow of saliva, would indicate a defective nervous and physical development, suggesting degeneracy.

Question 20. *A lower molar on each side, with several small fillings in the crowns. Just above the gum margins the teeth are very soft, and I have filled these soft places once, but after six months the patient returns for other and larger fillings. The crowns are hard. The patient is a lady twenty years of age. Is it a case of soft teeth without remedy, or can I do something for them?*

Canterize the cavities with nitrate of silver and fill with gutta-percha.

Dr. Barker.

It is a case of soft enamel and the only thing you can do is to refill, but it is doubtful if you can save the teeth many years.

Dr. Avery.

I realize the best results by using the rubber-dam, making cavities as large as convenient, removing all white enamel, lining

cavities with a varnish of rosin and chloroform, and filling with gutta-percha.

Dr. Johnson.

Fill buccal cavities with gutta-percha and I think the teeth will harden. Correct all acidity and have patient use limewater as a mouth-wash.

Dr. Allen.

I would preserve natural crown as long as possible by means of copper amalgam, and when too far gone for that I would crown.

Dr. Amrine.

CAPPING PULPS.

In DENTAL BRIEF for December, 1898, page 292, Luelia Cool says: "My plan is to cap all nerves (pulp), and if they fail extract them." This is a mistake, and is simply barbarous to the patient. With rare exceptions it is possible to judge whether a tooth should be devitalized or the pulp capped. Careful diagnosis and good judgment will often save a patient much pain and inconvenience. Teeth often come to hand with the pulp in such condition that, though it is still vital, it would be little short of malpractice to cap the pulp.

If in a tooth, which an intelligent patient gives a history of one or more severe aching periods, we find an exposed nerve and sensitive dentine. Pressure or cold causes the tooth to ache, and the pain does not cease without the application of medicaments. In all such cases devitalization is the proper course, for it indicates that inflammation and, perhaps, suppuration has begun. My plan is to cap all pulps that have never been inflamed. Devitalize all others, and thoroughly fill root-canal. To cap an inflamed nerves injures yourself, the patient and the dental profession.

W. G. Baker, D.D.S.

HOW THE SICK ARE MADE SOUND IN THE JULIAN ALPS.—At Veldes in the Julian Alps is a curious sun-cure resort. It is patronized by the jaded Viennese. The region roundabout is most beautiful and the climate is unsurpassed. The idea of the man who established the resort is that clothing causes disease. Therefore he makes his patients go as nearly naked as decency will permit. There is a Hill of Men and a Hill of Women where sun baths are taken. Massage also is practiced. Rest, dieting and fresh air work wonders, and many invalids who think themselves incurable go home feeling rejuvenated and happy.

CURRENT THOUGHTS.

OCCLUSAL CAVITIES IN BICUSPIDS AND MOLARS.

Dr. C. N. Johnson, Chicago.

These cavities are usually the result of structural imperfections in the tooth by which the developing islands of calcification, beginning at the tips of the cusps, have failed to properly unite on approaching each other, leaving a leak for the ingress of foreign matter. The chief considerations in the management of these cases relate to the breaking down of overhanging enamel, the removal of decay, the obliteration of any remaining structural imperfections in the way of fissures extending from the cavity, and the proper retentive form for the filling.

An important distinction between caries occurring upon these surfaces and that of other surfaces already considered is due to the fact that upon occlusal surfaces decay seldom occurs except as the result of defects in the enamel, while on the others it is often found beginning upon perfectly formed enamel. The reason for this is that the friction of mastication very largely prevents the possibility of decay upon the occlusal surfaces, except as the agent of caries is harbored in some crevice or fissure where the cleansing process of mastication cannot reach. On this account extension for prevention is seldom indicated on occlusal surfaces unless the drilling out of all fissures running from the cavity may be so interpreted.

This problem of the treatment of fissures is one indissolubly linked with the management of these occlusal cavities. Many operators do not seem to consider it necessary to drill out fissures unless actual decay has begun in them. They overlook two things—the difficulty of making a good margin to the filling at the intersection of a fissure, and the real nature of the imperfection that a fissure represents. If an operator has any doubt as to the necessity for drilling out all fissures extending from a cavity under preparation, let him make a microscopical examination of sections of teeth cut crosswise of a fissure, and he will no longer hesitate. In many of these cases where the orifice of the fissure is so narrow as scarcely to admit the finest exploring instrument, the microscope will show a decided imperfection reaching entirely through the enamel. This kind of a break in the enamel surface is a serious menace to the tooth, and no operator is doing his duty by the patient when he leaves such a defect in connection

with his work. It is the minutiae which counts in dental practice, and microscopic conditions must not be ignored.

It would be a revelation to many operators to turn the microscope upon cases similar to the ones they are treating every day, and see the numberless imperfections which the unaided eye cannot detect. One of these fissures, apparently so slight as to be of little moment, and which the blunt exploring instruments in common use in offices will scarcely penetrate, may be found large enough on microscopical examination to admit a whole army of microorganisms, sufficient, if the conditions be favorable, to undermine the tissue in a few months. If we are to successfully combat this disease of dental caries, we must be observant and infinitely painstaking.

Another reason for drilling out these fissures and filling them is because the surface of the tooth is thereby rendered more perfect in form. In almost every case where a fissure exists, there will be found a somewhat notable depression in the enamel leading down to it, and this V-shaped sulcus furnishes a receptacle for the lodgment of certain kinds of food material, to the annoyance and discomfort of the patient. Berry seeds and other like substances are especially prone to lodge in these depressions, and comfortable mastication is thus interfered with. It should be the office of the dentist to correct, if possible, any faults of form in the teeth he is operating on, and this may readily be done in the case of fissures by drilling them out and building up the filling. This change in the form of the occlusal surface does not in any way detract from the efficiency of mastication, because the biting force of the cusps of the opposing tooth will be fully as effective, if not more effective, when exerted against a moderate concavity such as the surface of the filling would present, as it will when brought to bear upon a V-shaped depression.

The Marginal Outlines.—The outlines of the different cavities on the occlusal surfaces will vary greatly according to the kind of tooth and the particular conditions present in each case. The number of cusps and the direction of the fissures seem to be the most prominent factors in determining cavity outline, while the extent of decay is of course always to be reckoned with. This is almost universally the form for these teeth where the slightest decay has begun upon the surface, even if only one pit at the termination of the central groove has been affected. The reason for this is that the groove is nearly always fissured throughout its length, and even when not fissured it is sufficiently sulcate to prevent the proper finish of a filling against its intersection. In lower

bicuspid—particularly in the first—the transverse ridge of enamel leading from the buccal cusp to the lingual is often so prominent and so perfect in structure as to leave no central groove, thus dividing definitely the mesial and distal pits. In these cases the pits may be filled separately. In the lower second bicuspid the outline may sometimes simulate that of the upper bicuspid, while in occasional cases we find three cusps on this surface. In the upper molars there are usually two cavities corresponding to the central and distal pits, or the disto-lingual groove may be fissured throughout its length. In extensive decay, where the oblique ridge of enamel between the central and distal pits is so seriously undermined as to jeopardize its stability, it should be cut away.

It is sometimes a point of nice distinction to determine whether this ridge shall be left standing or be broken down, the decision being based principally upon two factors—the extent of dentine supporting it, and the depth of the distal groove. If it is not well supported by dentine, it will prove an element of weakness between the two fillings; and if the groove is sufficiently deep to present a notable depression at this point, it will leave an undesirable form to the surface. The operator must decide on the basis of long-continued usage in the future, rather than from past usage or a temporary service. One condition in this connection is calculated to mislead an unobservant operator, and this holds true as well of other walls on the occlusal surfaces as of the one under consideration. The fact that a certain wall has stood without fracture up to the time of the operation is often accepted as an indication that it may safely be left around a filling. The argument is used that if it has not broken when surrounding a cavity, it certainly will not break when reinforced by a filling, but an important factor in the case is overlooked. When a tooth begins to decay, it is often more or less sensitive under mastication, and the patient involuntarily forms the habit of favoring the tooth, so that it does not receive its full share of masticating usage. The decay progresses till the enamel is so undermined as to leave very weak walls, which may stand indefinitely under these conditions, so far as the stress of mastication is concerned. But when the cavity is filled and the tooth rendered comfortable, the patient gradually begins to use it again, and the consequence is often fractured walls when the operator has judged them to be safe. The highest class of service to our patients demands the closest insight into all of the factors making for or against the success of our operations.

The cavity outlines on lower molars differ from those on upper molars, and there is also a variation between the lower first molar and lower second molar. The lower first molar has five cusps intersected by grooves which are frequently fissured, thus resulting in a cavity outline. Occasionally the buccal groove and the disto-buccal groove are fissured throughout their length, which would result in the filling being carried over on the buccal surface to the full extent of the fissure. The lower second molar has four cusps. The third molars, upper and lower, are so variable in form as to preclude the possibility of suggesting anything like a uniform cavity outline in either of them, each case calling for special consideration as it presents itself.

The Cavity Walls.—The walls surrounding these cavities should be perpendicular, or in line with the long axis of the tooth. The pulpal wall or seat should be horizontal or flat, and should join the other walls at right angles. This is particularly true of the mesial, distal, buccal and lingual extremities of the cavity. On account of the difficulty of making a perpendicular wall at the termination of a fissure, the cavity extremities are sometimes left. This is an incorrect form, no matter how well the filling may be anchored in other parts of the cavity. The reason for this is that the extremities of the fillings formed like that are likely to be lifted out of place in the mastication of adhesive materials such as candies, etc.

The depth of the cavity pulpally is governed in the carious portion by the extent of decay, and in the fissured portions by the depth of the fissure. It will be found that anything short of a full extension to the depth of the fissure will result in so shallow a cavity as to render the filling material weak. Numerous failures of portions of these fillings along fissures have been noted in consequence of insufficient bulk of material. There can be no argument against deepening the cavity to the full extent of the fissure from the fact, as already stated, that wherever a fissure exists there is no binding strength to the tooth throughout its extent. The certainty of determining definitely just when the bottom of a fissure is reached is sometimes rendered difficult on account of the fine particles of tooth tissue from the drill filling the deepest portion of the fissure and hiding it from view. This may readily be overcome by flooding the cavity with one of the essential oils, which will cause the fissure to immediately show up dark and present its entire outline.

The width of the cavity bucco-lingually or mesio-distally in the decayed portion must be great enough to insure strong, well-

supported walls, while in the fissured portion it must be governed somewhat by the extent of the sulcus leading down to the fissure. The minimum width in any case should be not less than one and one-half millimeters. The mistake of leaving too narrow a cavity relates to the difficulty of readily securing adaptation and density of gold in a constricted crevice, besides the important factor of providing for a sufficient bulk of filling material to represent considerable strength on all surfaces which are subjected to continued usage.

Technique.—All overhanging walls may be broken down with sharp chisels, and the fissures opened with drills, as already described. The cavity may be cut to form with an inverted cone bur placed with its end looking toward the pulp and carried laterally to the extent required. In cases difficult of approach with the straight hand-piece—particularly on the lower teeth and the upper teeth of the left side—the bur may be used in the right-angle hand-piece. Where the decay is extensive, the softened dentine should be removed with spoon excavators to avoid unnecessary pulp exposure. The enamel margins may be beveled with a round bur. These cavities are cut to form very expeditiously, provided the operator uses sharp burs and goes straight to his work with a definite idea in his mind as to the required outline and form of the cavity before he begins cutting.

General Considerations.—Of all filling operations in the mouth, these should prove the most permanent and satisfactory if properly performed. There is little likelihood of a recurrence of decay around such fillings unless the operator has left imperfections in his work which would invite failure under any circumstances. The wear and tear upon occlusal fillings is sometimes great, but it is confidently believed that, with the plan of anchorage here outlined, ample provision is made for sustaining the filling against severe usage. The flat base to the cavity secures immunity from movement, and the perpendicular walls leave no overhanging enamel to be broken down. The obliteration of fissures results in improved form to the surface and precludes the possibility of microorganisms finding a habitat in this region. Operations here, as elsewhere, must be carefully planned and executed throughout, but the results on occlusal surfaces are never so much in doubt as they would seem to be in other localities.

Cosmos.

A FEW CONSIDERATIONS IN FILLING BUCCAL, LABIAL,
OR LINGUAL CAVITIES.

Dr. C. N. Johnson, Chicago, Ill.

All cavities occurring on either of the three surfaces—buccal, labial or lingual—call for similar treatment so far as the principles of cavity formation are concerned, except the small rounded cavities having their origin in the pits on the buccal surfaces of lower molars and the lingual surfaces of the upper anterior teeth. These pitted cavities are quite distinct in character and environment from the ordinary buccal and lingual decay occurring near the gum margin, and their preparation is so self-evident as not to call for any extended or detailed description. The fact that they are usually the result of structural imperfections in the tooth at the point of decay, and that they occur on surfaces which are ordinarily readily cleansed by friction, renders it necessary only to remove the carious and imperfect tissue, secure good margins, and give a mortised form to the cavity. No extension for prevention is required in these cases.

But where decay occurs near the gum margin and extends in a crescent form, following the outline of the gum along the surface of the tooth, the problem of its control becomes more complicated. These are sometimes accounted the most difficult of all cavities to deal with, and yet if properly managed they will respond to treatment with most gratifying results. The plans for keeping the cavity dry during the operation, which to many seem the chief difficulty in these cases, will be considered subsequently under another heading.

The Cavity Outline.—The proper marginal outline of the cavity becomes a matter of vital importance in its relation to the probable permanence of the operation. The reason that many of these fillings fail so early after their insertion may be traced to the fact that in the preparation of the cavity the margins are not extended to include all of the affected enamel. If we study the manner of progress of this form of decay, it will enlighten us greatly as to the necessities of the case in treatment. Occasionally we may find these cavities well defined in outline with a notable penetration of decay at a given point, and when such is the case with a surrounding surface of perfect enamel, our method of procedure is clear. We need very little extension of the margins.

But in the vast majority of cavities occurring on these surfaces it will be found that the area of decay is ill defined, and that the enamel is more or less disintegrated along the surface leading

from the cavity and following the margin of the gum. This affected enamel must invariably be included in the cavity outline and replaced by filling material if we are to be assured of permanent results. The fact that disintegration has commenced is conclusive evidence that the active agent of caries has found this particular point of the surface a suitable field upon which to work its destructive processes, and the assumption is clear that unless the conditions are radically changed the process will continue. The surest method of changing the conditions is to remove the area of tissue upon which the microorganisms of caries are known to act, and replace it with filling material upon which they cannot act. This one fact that enamel is vulnerable to the attack of microorganisms, while filling material is not, should give us a clearer conception of the required line of treatment in all those positions which are subject to the influence of the destructive agent. The broader we make our metal surface at the expense of the enamel surface, the more certain we are to avoid a recurrence of decay, and yet this does not imply that we must ruthlessly or ill-advisedly carve away sound enamel for the purpose of making a broad metallic area. It simply implies that we shall not stop short of reaching perfectly sound enamel in the extension of these cavities, and that particularly in positions suitable for the lodgment of microorganisms we shall be especially thorough.

The surface of the enamel surrounding one of these cavities must be critically examined for defects. Sometimes a crescentic line of discoloration extends from the cavity in such a manner as to confuse the operator with regard to the true condition of the enamel under it. It may be simply a discoloration on the surface, with sound enamel below it, or the enamel may be softened to considerable depth and the discoloration tend to hide the defect. The only way to determine the true condition of the enamel is to thoroughly polish away the discoloration with pumice carried on a brush in the engine. If the brush succeeds in removing all the discoloration, leaving a white and glistening surface to the enamel, we may know that the destructive agent of caries has not yet affected it; but if the enamel shows disintegration on its surface after the brush has been used, we must cut out this disintegrated tissue, even if it has not already penetrated the entire depth of the enamel.

The proper extension of the cavity rootwise involves the carrying of this margin well under the gum. There are two reasons for this: First, the one already given in connection with approxi-

mal cavities, that wherever the filling is carried under the free margin of the gum there will be no recurrence of decay at that point; and second, that the gum is more likely to remain healthy when overlapping a smooth gold filling than when overlapping tooth tissue, particularly if there has been any recession of the gum. This latter statement may appear illogical at first thought, but a somewhat close clinical observation would seem to confirm it beyond any doubt, and a careful study of the conditions will suggest a tenable reason therefor. In all cases where there has been any extended decay, it will be found that the margin of the gum has been interfered with in one of two ways. Either the decay has crept up under the gum, leaving the free margin lying in the cavity in an unhealthy condition, or else the gum has progressively receded and is lying against the cementum instead of enamel. In the latter case the cervical outline of the cavity is usually ill defined, with little penetration of the carious process. Under either of these conditions the gum will be found abnormal. If in the preparation of the cavity we press back the gum gently but to considerable extent, and make the cervical margin of the filling sufficiently rootwise, we shall find that the gum will rapidly cover it in a healthy condition. Not only this, but in many cases the gum will creep so far crownwise as to cover the neck of the tooth and filling far in excess of its position before the operation. It apparently takes more kindly to a smooth gold surface than it does to cementum which may be denuded, or to enamel which may be slightly roughened. Some extreme cases of this kind of gum reproduction have been noted, particularly in cuspids, where the gum has been known to cover the cervical portion of a filling to the extent of over two millimeters. Such results as these are sufficiently gratifying to reward the operator for the necessary expenditure of energy, and the patient for the discomfort accompanying the work.

In cases where it seems impracticable to force back the gum sufficiently by pressure, it may be slightly cut perpendicularly, when the flaps will readily yield to slight force and expose the neck of the tooth. After the completion of the filling these flaps will readily unite, providing the operator has been careful not to lacerate them. In very large decays, where the gum has filled the cavity with a hypertrophied mass, it should be cut out with a lancet and the cavity packed with gutta-percha for some days before attempting to fill. The gutta-percha should be allowed to extend well over the cervical margin of the cavity so as to force the gum back and expose the margin perfectly. This will greatly facilitate the operation and avoid laceration of the gum.

The Cavity Walls.—The plan of anchorage for these fillings is exceedingly simple. There is no need for the deep undercutting sometimes resorted to by operators, all that is necessary being to give a mortised form to the cavity by making the axial wall flat and the surrounding walls at right angles to it. At two points in the cavity it is well to make a slight dovetail to more securely lock the filling into place, viz., at the mesial and distal extremities. To this end the axial wall should be made slightly wider mesio-distally than the orifice of the cavity at the dentinal enamel margin. This is especially true where amalgam is to be used on the buccal or lingual surfaces of molars. Amalgam requires broader and deeper anchorages to hold it in place than does gold, and this fact should be noted particularly in those cases on molars where the cavity passes so far mesially and distally as to curve somewhat toward the approximal surfaces. These are the cases where amalgam is so often seen to curl away from the cavity at the extremities, admitting a leak around the filling. If amalgam is to be held securely in position in buccal or lingual cavities, it must be placed in broad, dovetailed anchorages.

Technique.—In many of these cavities it will be found that, while the enamel is completely disintegrated and dissolved away, the dentine maintains practically its original form, being simply softened or decalcified for considerable depth without breaking down. This softened mass of dentine is best removed with a hatchet excavator, the blade of which is thin, delicate and exceedingly sharp. The keen edge of the blade is placed on end at one extremity of the cavity, and forced to the full depth of the decay. Then by a dextrous turn the whole carious mass is rolled out of the cavity in one piece, thus removing at a single sweep what is ordinarily the most sensitive portion of the tissue. This, if done skilfully, is usually not a very painful proceeding; but there must be no half measures about it. Any picking or manipulation of the carious mass bit by bit is simply excruciating as well as ineffective. The operator should be at the same time gentle and thorough. His touch should be delicate and forceful, his movements definite and rapid.

When the softened dentine is removed with the excavator, the next step is to give form to the walls. This is best done with an inverted cone bur stood with its end against the axial wall and carried mesially and distally across the cavity till the desired form is obtained. This kind of bur gives the proper shape to the walls and leaves a mortised effect. As the bur approaches the mesial and distal walls of the cavity it should be carried somewhat into

these walls to give a dovetailed form. In posterior teeth inaccessible to the straight hand-piece, the desired result may be attained by using an inverted cone bur in the right-angle hand-piece.

When the walls are formed, the enamel margins may be beveled with a sharp chisel, or, what is preferable when properly used, a round bur in the engine. This must be kept under perfect control and made to follow the margin without slipping out of place. To maintain a bur in its proper position in following the margins of a cavity, it is often advisable to let the shank rest on a support or fulcrum formed by some adjacent surface of the enamel. In this way the bur may be accurately guided along the margin so as to cut at any desired angle. A more perfect symmetry may be given to a margin with a revolving instrument like a bur than is possible with a chisel. This is particularly true of the curves in the cavity outline.

General Considerations.—As has been stated, these cavities are often the most dreaded of any by the majority of operators. That they present elements of difficulty peculiar to themselves is undoubtedly true, but if treated on correct principles, they are in many respects the most satisfactory of all filling operations. The problem of anchorage is exceedingly simple, on account of the lack of any stress tending to dislodge the filling. The marginal outlines of the cavity, if properly formed, are comparatively safe from recurrence of decay, through the fact that the gum completely protects the cervical margin, and the other margins are kept clean by friction of the cheeks, lips or tongue. The open aspect of these cavities admits of an accurate placing of the gold and a close scrutiny of the margins to detect and correct any imperfections.

The chief difficulties of management relate to forcing the gum out of the way sufficiently to admit of free working, to keeping the cavity dry, and to the supposed fact that these cavities are usually more sensitive than others. As to the latter complication, it is counterbalanced both for the patient and the operator by the rapidity with which such a cavity can be prepared, and the discomfort in the aggregate is therefore not much greater than with other cavities of similar extent. The problem of managing the gum and keeping the cavity dry is simply a question of skill and "knack," which may be acquired by almost any operator who will give a close study to the special requirements of the case. With this skill once developed, these cavities are readily brought under control.

Cosmos.

THE OLD PATH.

Dr. J. Foster Flagg.

Dr. Trueman, is it not something like a hundred or a hundred and twenty-five years since Fouchard wrote?

The best authority we have places his birth in Brittany about 1690, possibly before; he died in May, 1761, in Paris; he began to practice at Nancy, but shortly after removed to Paris, where his reputation was made.

Then he probably wrote somewhere about 1740 or 1750. I have been specially interested in the agents that were used, the manner in which the things were looked at by the various gentlemen of that day, and I have been pleased with the exceeding accuracy of their information, their ideas, and the intelligence with which they applied certain remedies. Among those remedies probably no others have been more permanent than the oil of cloves and the oil of cinnamon. It has not been pleasant for me to read in comparatively recent literature of our profession the fact that exhaustive experimentation has been indulged in by certain gentlemen who have arrogated to themselves to "work up," as they call it, the present status of dental materia medica, and after long and wonderfully scientific experimentation they have come to the conclusion that about as good medicaments as can be used for the alleviation of dental suffering in a large degree are the oils of cloves and cinnamon! It is not pleasant for me to read, as I did a little while ago, that Dr. So and So read a paper in which he suggested that the cavities should be lined with "oxyphosphate of zinc," and that on to that material he would suggest that gold foil or amalgam should be placed, and that he thought that excellent results, in all probability, would accrue from such treatment as that! Such work in medicaments and methods makes me feel very much like people that I have seen on sea voyages. I want to go to the rail of the ship!

Again, I saw in a journal the other day a list of medicaments for the dental materia medica as long and as curious as the Moral Law. It has seemed to me that, instead of venturing out in such directions, if the materia medica of dentistry were concentrated, and we learned better the attributes of the tried medicaments, we would be better off. One year, in the clinic room of the Philadelphia Dental College, I cured every case with nothing but campho-phenique, to show the students the possible variations of one application.

When it comes to treating teeth with putrescent pulps and troubles of that kind, after opening them and putting in the sulphuric acid and water and solution of carbonate of soda, and dressing the canals with campho-phenique on cotton, it seems to me there is nothing more to be done. It is so extremely simple, all this work, that when we hear all the talk about the *materia medica* of dentistry and the "wonderful progress that has been made in the last decade," it seems somewhat disgusting. I do not consider it any progress to hamper us with all these medicaments and to tell us at short notice what wonderful things they do. I have tried everything that has been offered (as long as I was associated with the clinics it was my duty to do so); but the "wonderfuls" have been largely non-come-at-ibus!

Ah, Mr. President, I leave dentistry with some feelings of regret, but the most poignant of my regrets are because of the immense amount of tomfoolery which I recognize as being added in the shape of annexes to the practice of dentistry. Still, it may be there is money in it. That is something I don't know. They say there is money in this crown-work; they say there is a great deal of money in this bridge-work; through my career I have not had very much of that work; as far as my patients were concerned, they seldom had any occasion for crowns other than amalgam crowns, and as far as bridge-work is concerned, very few of them had any space to cover with bridge-work! I have found, to my idea, a sufficiency of money in the old kind of work, in the treatment of teeth in the ordinary way. I have kept my patients comfortable, I have treated and filled their teeth, I have taught "the boys" and laid aside a little for "the rainy day." What more could one desire? All this multitude of medicaments may be very nice, but my advice is to stick more to Fouchard and to the simple remedies, study those remedies and learn how to use them.

Items of Interest.

The Southern Branch of the National Dental Association, by invitation of the Louisiana State Dental Society, will hold its second annual meeting in New Orleans, La., February 9th, 10th, 11th and 13th, 1899, the following day being Mardi Gras. Circulars will be issued later giving details as to railroad and hotel rates, etc. All members of the National Dental Association and the American Medical Association are cordially invited as guests of the Southern Branch.

C. L. Alexander, Cor. Sec. S. B. N. D. A.

NITRATE OF SILVER.

The convenient use of argent. nit. was made possible when Dr. Kirk suggested in the *Cosmos* the saturation of asbestos fibre with an aqueous solution of the salt. Three years ago I acted on this suggestion, which has made nitrate of silver extremely satisfactory and successful in my practice.

The preparation is made by taking of

Argent. nit.	40 grs.
Aq. dest.	1 dr.

Reduce the silver to powder, and triturate with water in a Wedgwood mortar. Now take asbestos fibre, bit by bit, in a pair of tweezers, and pass through the flame of an alcohol lamp, to burn out any organic matter that may be present. Place each bit of asbestos in the solution, and repeat it till sufficient has been added so that the whole is nicely moist without leaving any excess of solution. Transfer to a wide-mouth bottle, preferably with a glass stopper.

Its extraordinary penetrating power must be kept in mind; though experience has taught me that it must be kept in close contact with the pulp to destroy it, and in the cases in which I have used it I have had no reason to think that any harm has followed its application.

If we are to save the teeth of children, this preparation must play a part. It is easily applied to incipient decay by being carried there on an excavator, and it may be applied to deeper cavities where, if it cause pain, the application of fine creosote is the immediate remedy. It is not here urged as a substitute for filling temporary teeth, but in conjunction with other remedies, local and systemic, it will work its wonders, as is generally known. The effects of the first application will be a blackening of the part to which it is applied; but a second and a third application at subsequent visits will be all that is necessary to arrest decay, and all that can be done for the salvation of the temporary teeth from nitrate of silver as a remedy.

Another important use is its power of closing up the gaping ends of the dental fibrillæ at the gum line, where the cementum has been worn off, leaving them exposed. These sensitive parts should be dried and the fibre applied, and left in contact for a few minutes. The stinging pain caused soon subsides, and the part may be burnished with a steel burnisher rotated in the engine.

The preparation is again useful as a diagnostic agent in molars. It is of great importance to know just exactly whether

the pulp is far off or nearly encroached upon. With a little practice this can be ascertained to a nicety. The cavity nearly prepared for the filling, apply the fibre. While it is there, the filling material may be got ready. If there is not any sensation of pain produced, that cavity will take a metal filling without a non-conductor. If, however, the cavity is a very deep one, no pain from the application will indicate a dead pulp.

If, after an interval of a minute or two, the patient, previously warned, reports slight pain, the operator is assured that the pulp is not far off, and will be best conserved by lining the cavity. If, however, pain is felt immediately the fibre is placed in the cavity, its immediate removal is demanded, and creosote or oil of cloves substituted to relieve the pain. In this case capping or destruction of the pulp is indicated. Argent. nit. used in this way saves an enormous amount of the operator's time, in that an exact condition of the tooth is readily known.

In dead teeth the fibre has been employed satisfactorily after the repeated application of the essential oils with aristol. It is easily carried to the end of the canal, and its penetrating power, I think, accounts for its value. Having used it frequently in this capacity, it has never given rise to pericemental irritation. Applied carefully to the root ends of even incisors, and followed up with a gutta-percha cone, no discoloration of the tooth neck has ever occurred.

In mouths where the exciting cause of caries is present, and fresh "chalky" cavities are constantly forming, the nitrate of silver will give surprising results. The fibre may be left in shallow cavities while others are being excavated. When removed, the inside of the cavity will present a yellow color, gradually changing to black, and a distinct hardening of the dentine. So treated, the dreaded recurrence of decay in these teeth does not take place.

It is supposed that oxide of silver is deposited wherever the salt penetrates and blackens.

W. Theo. Shanasy, in Australian Journal of Dentistry.

Do not use wooden toothpicks. They are not effective, and are apt to break or splinter and injure or irritate the gums. Gold or metal toothpicks are too hard, and constant picking is apt to injure the tooth substance. The quill pick is about as near perfection as anything yet found.

OUR COLLEGE COURSE.

Two important advancements were made at the late meeting of the National Association of Dental Faculties, affecting the rules governing the college course: First, an increase in the length of the course was made obligatory by the adoption of a resolution requiring an increase in the length of each of the three years' terms from six to seven months, or the addition of a fourth term of six months, as a minimum standard for the total length of curriculum.

The second advance step was the adoption of a regulation making the standard of preliminary educational requirement equivalent to attendance upon two years of the high school course. Both of these rulings to go into effect for the session of 1899-1900.

It is a matter for congratulation that this action has at last been taken formally by the Faculties Association, and that they have thus in large degree effaced the wrong done at the previous meeting in practically lowering the preliminary standard from the point at that time attained. We hope to see the minimum standard of preliminary educational requirement for dental students placed at the point of high school graduation, which is none too high, and where it logically belongs until our educational system has developed to the degree that we can prescribe more accurately the details of a correct educational curriculum naturally leading up to dental professional study.

We have for some time maintained, and have elsewhere called attention to the fact, that the kind of education best adapted for preparing a student to enter upon the study of dentistry is, or should be, special in character; that his education, even though it be as broad as possible, may yet not comprise those factors best suited to his needs as a dental student. As the official minimum standard of preliminary education is gradually approaching a reasonable maximum of what a fair average preliminary education for entrance upon dental study should be, it becomes more imperatively necessary that dental educators should recognize the importance of the qualitative factor as well as of the quantitative factor in our preliminary educational requirement.

Surely not all kinds of preliminary education are best suited for preparing a student for the study of dentistry. Let us therefore seek out and add to the curriculum of preparatory study those branches best adapted for the purpose in view, and at the same

time eliminate those which are useless or relatively so, in order that in time it may be within the power of dental college authorities to prescribe and promulgate a system of preliminary training which shall be best fitted for preparing students to enter upon the course of dental professional study. This is clearly within the function of the national association to inaugurate and perfect, and could well occupy time and energy less profitably expended at present.

Cosmos.

GOLD CROWNS OVER LIVE PULPS.

A Discussion.

Dr. Rhein: I do not believe that any tooth that is to be crowned should be allowed to have a pulp remaining in it. It only invites trouble in the future, and invites the possibility of a serious abscess at some time when that patient may find it very difficult to get proper professional treatment.

In an alveolar abscess developing from a dead pulp under a gold cap, which was originally placed in position over a tooth containing a living pulp, I would be compelled on the witness stand to say that the work was done improperly, and that the dentist was incompetent. After the results of the latest investigation upon caries, and inflammation as affecting the life of the pulp, I could not conscientiously hold any other opinion. There are very few crown specialists who have given this subject attention that agree with Dr. Evans in placing caps over living pulps.

Dr. Evans: I rise in total condemnation of such statements as Dr. Rhein has made. The idea of taking a pulp out of a tooth because you have to cap it is most absurd. I have heard such statements made, but I did not think Dr. Rhein entertained them.

What is the pulp? It is an organ in the center of the tooth that nourishes the dentine and keeps up its vitality, and because we would cap that tooth, should we destroy that pulp? There is no common sense in it. What has a cap to do with destroying the pulp in the tooth? It may, in some cases, if it is treated as some treat it—the cavity not sterilized, and filled with oxyphosphate—but take the hollow tooth, sterilize it as I do, and fill it with oxychloride of zinc, not oxyphosphate, after first coating the cavity with some varnish or chloro-gutta-percha, and thus restore the tooth in a measure to its original form before you cover it with a crown, and you will have different results. In oxychloride of zinc you have an antiseptic filling that will preserve the tooth and never become septic; then you can crown it as you wish, and

cement the crown on with oxyphosphate of zinc and feel that it will be safe.

Dr. Rhein: What damage is going to result to the tooth, if you intend to crown it, by removing the pulp?

Dr. Evans: You take its vitality away; you make it a dead member, and it is liable to inflammation. Alveolar abscess does not always ensue. I have in my mouth to-day two teeth which have been well treated, but which are tender in comparison to the others. One had an abscess, but it was treated and filled. Pulpitis occurred in the other, and the pulp was removed. I cannot press on that tooth to-day with that same reliance as I can on my other teeth. I think nineteen out of twenty gentlemen in this room will bear me out that they would rather have a tooth with a living pulp than a pulpless one.

Dr. Rhein: I am glad Dr. Evans has thrown down the gauntlet so openly, and I am ready to pick it up. The statements he has made just now show clearly that he occupies a position in this matter that our knowledge of the physiological conditions of the circulation around the tooth, of the object of the pulp, and the whole history of a tooth in the jaw does not bear out. The time of life when a crown is put upon a tooth is generally at the age when the function of the pulp in a useful capacity has absolutely ceased to exist, and where it can only become a detriment to the tooth. I will not stop to answer the statement that Dr. Evans has made, that the loss of the pulp makes the tooth a dead body. That has so long ago ceased to be exploited in a dental meeting that I am surprised Dr. Evans should have mentioned it. After a certain age of maturity has been reached, the point to be considered is the stability of the teeth in the alveoli. What the human race is suffering from more at the present time than anything else is the loosening of teeth, which is caused by a lack of nourishment around the pericementum. The latest investigations of Williams and Tomes have proven beyond peradventure that the circulation that goes to the pulp is the same which supplies the pericementum, and it does not take a strong amount of reasoning to see that if a given amount of nutrition goes through a given capillary, and if the pulp absorbs a portion of it, the pericementum will be deficient in its supply if sufficient nutritional matter does not pass through this capillary. At this age of maturity, the pulp virtually stops nourishing the dentine; this age may be as early as twenty-five or twenty-six, although it generally does not come before thirty-five. After that the pulp, instead of nourishing the dentine, fills up its own surface by means of the odonto-

blasts with solid dentine. This is done at the expense of the nutrition to the pericementum. As proven by the latest investigations, we have the cementum and the dentine inside of the cementum supplied with nutrition after this age mainly from the pericemental circulation, and not from the pulp circulation. It is easy for the gentleman to say it is not so, but the latest investigations have substantiated it, although this teaching may be contrary to old beliefs. I have cured many a case of pyorrhea alveolaris and made a loose tooth firm by removing the pulp of the tooth and filling the root, in that way giving a better nutritional supply to the pericemental circulation. It is for these reasons that I say when the pulp has been removed from the interior of the tooth at a certain age, the pericemental circulation will improve, and that tooth stands a better chance of being immune from loss by pyorrhea alveolaris than if it were left with a pulp that in case of nutritional deficiency or from other causes would be constantly robbing the pericementum of the nutritional protoplasm which it daily requires for its healthy maintenance. *Cosmos.*

CROWN- AND BRIDGE-WORK.

Dr. Evans.

The abuse of any system must not be a cause for a condemnation of the system. We are going through an era in crown- and bridge-work in which the system is much abused, but this does not condemn it as a method of prosthesis in dental art. You can take any branch in dentistry and abuse it.

Operative dentistry has had its era of the display of gold filling in the front teeth. I have seen front teeth partly destroyed by the manner they have been cut away, right here at dental clinics in this city, so that some special operator could display his skill at manipulation of gold foil. People of refinement dislike a display of gold in their teeth, and at the present time, with the improved forms of separators we have, there is no excuse for it.

The demonstration I gave here to-day was to show a method of crowning a front tooth in which there is absolutely no appearance of metal, and yet everything is accomplished that can be accomplished by the gold collar crown. It is a simple method that any operator can practice, and he does not have to make a collar to the crown to do it. As to crown- and bridge-work lessening in practice, I think it is the other way. Because Dr. Sheffield does not do as much as he did is no evidence that it is

not being done. It has passed from his hands into those of other advertisers, such as the dental parlors that are found on our principal streets.

When I wrote my treatise on crown- and bridge-work, I thought I was going to elevate the subject of prosthetic dentistry, but the way the system has been abused, it has detracted.

I never crown a tooth with gold if I can better serve the interests of the patient by filling it. Gold crowns will last (and last well) when they are properly constructed, fitted and cemented. I had one in my office the other day that I put on in 1883. It figured in the late lawsuit of Rynear in regard to antedating his claim to the seamless crown, and was in perfect condition.

As to instructing students in dental colleges, I have for a number of years been an instructor in one of our principal colleges, and I challenge any student to say I ever recommended the use of gold in the front of the mouth. I always advise them to avoid it as much as possible. True art in dentistry calls for the concealment of the art. As to the use of gold crowns on bicuspid, there are cases in which I would prefer to put a gold crown on a bicuspid rather than a porcelain crown. I am a great advocate of retaining vitality of the pulps of teeth. No man can make me believe, except in a person of advanced years, that a tooth is just as good without the pulp as it is with it. Suppose we have a first bicuspid in which there is an acid condition of the secretions of the mouth, and a large mesial and distal cavity, with the pulp on the verge of exposure. The tooth has been filled and refilled. This often occurs in the first and second bicuspid. The refilling of that tooth will only result in a repetition of what has already occurred—disintegration of the edges of the cavity and more decay. Would I destroy the pulp and put on a porcelain crown in preference to capping that bicuspid? Would I in my own mouth have that done? No. There are some people who would not tolerate gold, but in my own mouth, or in that of a friend whom I could influence, I would endeavor to cap the tooth with gold, feeling that I was doing the best thing under those circumstances.

Cosmos.

NUMBER OF TEETH.—Man has 32 teeth; the pig has 44 teeth; the dog has 42 teeth; the horse has 40 teeth; the cow has 32 teeth; the cat has 30 teeth; the monkey has 32 teeth—that is, most species do, although some species have more. The teeth of the monkey, however, are more like the teeth of man than are those of any other animal.

Information.

GOLD TEETH.

Dr. J. A. Bishop.

I have a little clipping from one of our "yellow journals" in this city. It is headed "Frowns Upon a Fad," and reads thus:

"TO THE EDITOR:

"Allow me to call your attention to the gold tooth, which is becoming so popular with the young ladies of this country. I am desirous of interesting you in this subject, so you will by your influence advise the people through the *New York Journal* to stop having one of the greatest gifts they possess destroyed (their teeth) just to have one of those unsightly gold teeth placed in the front of their mouths. What a pity it is that the American girls indulge in such a barbarous custom! It is not unlike one of the characteristic traits of some of the tribes on the Philippine Islands, who blacken their teeth to make themselves look more beautiful.

"M. B. Bell, D.D., Baltimore."

The writer of this article seems to think that this foolishness is due to the young ladies, or to the people; but I think it is more the fault of our operators. The workmanship of the present age in dentistry is so wonderful and skilful, that it seems to me he is not a very good artist who places a gold crown in the front of the mouth by the side of beautiful natural teeth, where he has the most exquisite work of his Creator to model after. As teeth in their color and size are created by a mind greater than man's, he may little hope to succeed who attempts to restore nature by such contrasting effects.

I had a young lady in my office who had beautiful teeth, with the exception of the left lateral. I cannot tell you the reason, but some operator had put a gold crown upon it between two teeth most beautifully colored by nature. The glare of that one tooth threw into shadow the rest of the mouth. It was well put on, but it was a great disfigurement. Last Wednesday afternoon I placed in the mouth of a young patient a lateral tooth. The life was still in the root; the pulp was healthy, and I saw no better way than to take a thin piece of gold plate, and, with one of my handle-pluggers as a pattern, strike it up so as to make a half-thimble to fit the lingual side of that root. Then I took a porcelain crown and ground it out so that I could put on a lining; then these were fitted, soldered and cemented, successfully completing the operation. The life is still in that root, and the appearance is that of a good natural tooth. This method can be adopted in almost all cases, and its superiority to the use of a gold tooth must be evident to the most careless.

Cosmos.

GOLD VENEERS.

Dr. O. B. Burns, San Francisco, Cal.

I do not claim to be the originator of this system, but I claim an improvement on an old method. In the second volume of the *American System of Dentistry*, at page 949, it will be found that Dr. Bing, of Paris, introduced in the seventies what was then called a "metallic facing," which was made of pure gold plate, the under portion having soldered to it platinum wire loops, the same being pressed while warm into and upon a gutta-percha stopping placed in the cavity of the tooth.

Professor Charles Essig improved this system by filling the cavity with wax, and contouring it to its proper shape, then he took an impression and made a die and counter-die, swaged the gold, soldered the platinum loops underneath, and set it over the rubber the same as Dr. Bing. In making a gold veneer, I prepare the cavity the same as for a filling, and fit pure gold plate (28-gauge) so that it laps over the tooth beyond the cavity about a sixteenth of an inch. If the veneer is to be small, it can be easily shaped by a burnisher of a suitable size, not forgetting to anneal the gold frequently while burnishing it into shape. For larger cavities make a die and counter-die, and swage the gold veneer so as to get the proper contour, being careful always to see that the occlusion is perfect. When the veneer has been burnished into its proper shape, turn it over and on the inside surface will be seen a faint line all around it close to the edge. This mark on the gold will give an outline of the outer wall of the cavity itself. If you cannot see the mark in some places, use the eye and put the line where you think it should be. Now take a strip of gold (32 or 33-gauge) about one-sixteenth of an inch wide, and stand it on its edge on the under portion of the veneer, following a little inside of the line, forming a rim which will just fit inside the outer walls of the cavity. Solder this rim with 20 or 22-k. solder, then try it once more over the cavity, making sure that the fit and occlusion are perfect. Remove the veneer and bevel the outer edges of the cavity with a bur, stone or paper disc. Apply the rubber-dam and dry out the cavity thoroughly. Take a fine file and bevel the edges of the veneer slightly; try it in once more, and with a burnisher make the outer edges of the gold fit close over the enamel of the tooth. Mix the cement rather soft, the same as for crown- and bridge-work. Place it in the cavity, making sure of a surplus. Then press the veneer into position, holding it there with an instrument in the left hand, and at the same time

burnishing the gold into place with a burnisher in the right hand. Make sure that you press the outer edge of the gold close to the enamel of the tooth, leaving no space between them. If making an approximal veneer, cut a wedge of wood and force that between the veneer and the adjoining tooth, making the gold hug the tooth at the cervical edge. Work a flat burnisher or spatula between the wedge and the veneer of the tooth, twisting and giving it a side motion at the same time, and by so doing it will be possible to force the gold close to the sides of the tooth near the gum margin. Burnish the rest of the veneer into place with a burnisher, then with the electric mallet and a suitable plugger-point force the gold still closer to the enamel edges of the tooth, making a perfect joint and also stiffening the gold at the same time. I always place a piece of chamois skin between the plugger-point and the veneer, so that I do not leave any scratches. I generally use foot and ball-shaped pluggers for this portion of the work. The electric mallet I run with a four-cell storage battery, which gives plenty of power to force the gold wherever I want it to go. The finishing is done mostly with sandpaper and cuttlefish discs, and afterwards polished with fine pumice, chalk, etc. The burnishers must have large handles, so that you can hold and have perfect control of them while using. It is also essential that a good, slow-setting cement be used. *Atlanta Journal.*

SENSE OF FEELING IN A LOST LIMB.

Dr. Hervie A. Dobson writes of his own experiences following an amputation of his left leg. He states that the limb was amputated at the middle third of the thigh over thirty-four years ago. The sensation of knee, foot, heel, hollow of foot, and toes being present is stronger than in the other limb. In fact, when at rest one is not conscious of any sensation in his limbs in a state of health; but in the stump the sensation is ever there, sometimes painfully so. This is no hallucination, but is due to anatomic and physiologic reasons. "Nerves of sensation pass out from the spinal column to every part of the surface of the body, each nerve having its own particular part to supply and each conveying to the nerve-center knowledge that its terminal point is being irritated. Thus, a nerve terminating in the end of the big toe, no matter where it is irritated between the nerve-center and the end of the toe, will say to the nerve-center, 'the end of the big toe is touched or hurt.'" Just before storms, when the barometric

pressure is light, the air within the tissues expands and presses on these nerve-ends, causing intense pain sometimes, and there is no relief but to reamputate the stub and see that the nerves are not caught in the cicatrix.

It is generally the stump that perished away and becomes small that gives the most annoyance. He adds, "My leg was amputated in such a position that when I stand it seems to be flexed with the foot behind me, and I have often tried to remove it from the way of persons passing, and have even tried to put it out to prevent the slamming of a door behind me, and much to my surprise the door did not stop. I have had many a fall in trying to walk, when springing up quickly I tried to put my foot to the floor. I have seen comrades whose legs were amputated below the knee, when on crutches, try to put the foot down and so come heavily on the end of the stump. As I grow older there is a sense of shortening in the leg, the foot seeming to come nearer the body. If I move the muscles of the stump, as in the effort to extend the knee, a sensation of great heat occurs at once in the stump, when it may be almost frozen with cold. Dry heat sometimes relieves pain in the stumps, but nothing will relieve permanently except an operation, as above stated."

THE BUBONIC PLAGUE IN VIENNA.

This dreaded disease has claimed six victims in the Austrian capital as the result of experimental researches in the laboratory of Prof. Hermann Nothnagle. This, indeed, is an unfortunate occurrence, especially as it seems to have occurred as the result of scientific experiments. The *Philadelphia Medical Journal* has this to say:

"We have to record the melancholy intelligence of an unfortunate outbreak of bubonic plague in the Austrian capital. Some days ago, Herr Barisch, an employé in Professor Hermann Nothnagle's laboratory, while participating in investigations concerning the plague-bacillus, contracted the disease, and after a few days' illness succumbed on October 8th. The excitement occasioned by the announcement of this death was only augmented by the additional intelligence that the two nurses who had attended Herr Barisch themselves showed manifestations of the disorder. Almost immediately it was announced that Dr. Franz Herman Müller, who had been assiduous in his attentions to Herr Barisch, was attacked and became very ill, and that the

wife of Herr Barisch and another assistant showed symptoms of the disorder. Popular excitement ran high, and the city is said to have been thrown on the verge of a panic by the death of Dr. Müller on October 23d. As we go to press there have been reported six cases with two deaths. The apprehension of the inhabitants of the city seems not to have been allayed by the extraordinary precautions taken to prevent the spread of the disease. The body of Herr Barisch was securely wrapped in clothes saturated with germicides, placed in a double coffin, and hermetically sealed. The other patients were placed in an isolation-building, and are attended by Dr. Poech, a volunteer physician and two Sisters of Charity. Neither egress nor ingress is permitted. Four other suspects have also been carefully isolated. All the animals used for experimental purposes in Professor Nothnagle's laboratory were killed and cremated. The government appointed a committee consisting of representatives of national and municipal bodies to devise ways and means to prevent the spread of disorder. And finally, lest they should be taken unawares, a temporary hospital, consisting of several detached sheds, was hastily erected during the night, behind the Infectious-diseases Hospital.

It seems that constant association with highly virulent bacteria does beget in some a disregard of the attendant dangers, and doubtless after an investigation of the facts it will be found that the outbreak is clearly attributable to some neglected precaution. This is assuredly not as it should be, for the introduction of the Asiatic scourge into Europe, whether through the ordinary avenues of commerce or as the result of scientific investigation, is a most serious matter, and in either instance is to be equally deprecated. True, the disease is as yet limited to a half-dozen cases, and will in all probability be eradicated, but its mere presence is food for serious thought. A most painful feature of the situation at present is the unscrupulous and uncompromising attitude of the antisemitic newspapers who are accusing the Jewish physicians of having introduced the plague into the city. It is feared that this appeal to the worst passions of the mob-populace may result in plague riots against the Jews in case the disease spreads; at the least, it may lead to a serious setback to the scientific investigation of the disorder. Dr. Müller was considered quite an authority on the plague. As a member of a committee consisting of himself, Dr. Albrecht, Dr. Ghon, and Dr. Poech, appointed by the Imperial-Royal Academy of Science, he proceeded in 1897 to Bombay and other points

in India for the purpose of studying the plague. The committee returned some months ago to Vienna, and the reports of its members has been noted in these columns."

The Atlanta Med. and Surg. Jour.

"TOTHE-LORE."

George L. Parmele, M.D., D.M.D. (Harv.), Hartford, Conn.

"Aloft in rows large poppy-heads were hung,—
In this place, drugs, in musty heaps decay'd,
In that, dry'd bladders and drawn teeth were laid."

Philosophy is said to console a man under disappointment, though Shakespeare asserts that it is no remedy for toothache. Assume, then, the air of a Stoic and lend me your ears. The days of miracles and chivalry, we are told, have passed—witches, fairies, ghosts, goblins, and devils are laid full many a fathom deep in the ocean of oblivion, but charms and superstitions still abide with us, and one comes in contact with them almost daily.

How often do we meet those who will not undertake a new work or a journey on Friday, who exclaim when salt is spilled, or throw up their hands in "holy horror" when a mirror is broken!

These remnants of superstition originated in antiquity, and have been fostered by an age of credulity. Myths and superstitions, the wearing of charms and amulets, are common to many lands. Every country has its magic for the relief of pain and cure of disease; belief in it is not confined to the ignorant and uncultured, and however great the distance between the countries a similarity in their myths and traditions will be observed.

Frequently actual prayers, exhortations, and orisons, not always reverential, often a mere form without meaning, are employed.

The constituent elements of folk-lore, items which we gather from day to day, are survivals of a condition of human thought lost in the obscurity of a dim past. Fontenelle, a writer of the last century, shrewdly remarked that "all nations made the astonishing part of their myths while they were savage and retained them from custom and religious conservatism."

"Folk-lore" is a term first suggested by Mr. Thoms, in 1846, to designate "that department of the study of antiquities and archaeology which embraces everything relating to ancient observances and customs, to the notions, beliefs, traditions, su-

perstitutions, and prejudices of the common people." My title "Tothe-Lore," or "Folk-Lore of the Mouth," is an adaptation of this term to the special line along which I am working.

"Evolution in folk-lore" is a fascinating study, one which I hope to follow, but in which I have as yet hardly passed the stage of a collector.

Remembering Mrs. Glass' advice in cooking, "first catch your rabbit," let us, before dealing with the teeth themselves, observe a few of the caprices, curiosities, and maladies attending their passage through the gum, as well as some of the methods suggested to alleviate all difficulties thereupon attendant.

It is said that the baby who cuts its teeth hard will be successful in every way; on the other hand, the proverb "Soon toothed, soon turfed" signifies that a child which cuts its teeth early will be short lived. This is an English proverb, and the Scotch have as an equivalent "Soon tod, soon God." Some primitive tribes are in fear and dread of children whose upper teeth erupt before the lower, and hasten to kill them, as do the Basutos, Wakikuyu, Wanika, Wasawahili, and Wazegua. Among the Wazaramo, another African people, such children are either put to death, given away, or sold to a slave dealer, for the belief is that, through them, sickness, misfortune, or death will enter the house. The Arabs of Zanzibar, after reading from the Koran, administer to such a child an oath that it will do no harm, making it nod assent with its head.

In the *Popular Science Monthly* I read that "the birth of a child among the Bondei people of Africa is attended, according to the account of the Rev. G. Dale, missionary, by many great perils, for if a single condition regarded as unfavorable occurs, the infant is strangled at once. Its life is in danger again at the time of teething, for it may be so incautious as to let its upper teeth protrude first, and if this is the case it is held unlucky, and will almost certainly be killed. Even if it is allowed to live it will be in perpetual danger, and any disaster that happens to its parents will be attributed to it. If, however, the under teeth protrude first the child's moral character is established. The boy cannot, however, enter the house in which the unmarried men sleep till he has been publicly welcomed. For this ceremony, all the boys and girls assemble and the father brings the child out to show them that the lower teeth have protruded first. Then every house contributes Indian corn, and the children pound and eat it, after which the boy is regarded as one of them."

In some parts of England it is unlucky for a child to see itself

in the mirror before it cuts its teeth, as it will be vain and proud. If a child would be lucky, it must cut its teeth on the mother's marriage ring. Gold, at any rate, should be used to bite on.

A mole's foot tied by a string and hung around the neck while teething is believed (in and around Washington, D. C.) to aid the process. Perhaps this idea comes from the old doctrine of signatures, as, like the embryo tooth, the mole's foot burrows around in the dark. In some drug shops, and in the markets in Georgia, the forefeet of moles are found for sale as aids in the eruption of teeth of colored children.

It is said by old women that teething is made much easier by placing around the child's neck a string of "Job's tears," which consist of the dried berries of *croix lacryma*,* which are supposed to have a great soothing power.

"The well known toy," says Brand, "and a piece of coral at the end, which is generally suspended from the necks of infants to assist them in cutting their teeth, is supposed to have originated in an ancient superstition, which regarded coral as an amulet against fascination. It was thought, too, to preserve and fasten the teeth in man." Plat, in his "Jewel Home of Nature and Art," says, "Coral is good to be hanged about children's necks, as well as to rub their gums, as to preserve them from the falling sickness."

The following I copied from a quaint old medical work, entitled, "An Essay of the Pathology of the Brain and Nervous Stock, in which Convulsive Diseases are Treated of," by Thomas Willis, of Christ Church, Oxford. Translated out of the Latin, London, 1681.

For the "convulsions of teeth breeding * * * bleeding and the seton are recommended, then the following powder should be given in a spoonful of Jalap, for three days, morning and evening. Take of human skull prepared, of the root of male *Pæonie*, each, 1 dram; of powder of pearls, $\frac{1}{2}$ dram; white sugar, 1 dram. Mingle them and make a very fine powder." From an unrecorded source I ascertained that for a child to cut its first tooth in the upper jaw is regarded in the South as a sign that the child will die in infancy. This idea was probably an African importation.

* *Croix lacryma* is a grass native to the East Indies and Japan. The large, round, shining fruit has, when young, some resemblance to heavy drops of tears, hence the fanciful specific name. The medicinal effects are said to be tonic and diuretic.

In North Carolina, when a nurse is so inconsiderate as to hold a baby out of an open window, or to allow it to see its own image in a mirror, the negroes believe that difficult teething is produced, the charm to cure which is a necklace of alligator's teeth, or to rub the gums with the ear of a rabbit.

That the time of the appearance of the teeth was often irregular was known to Shakespeare, for in Richard III, act 2, section 4, he makes York say, "Marry, they say, my uncle grew so fast that he could gnaw a crust at two hours old; 'twas full two years ere I could get a tooth. Grandam, this would have been a biting jest."

In a "Commonplace Book," written by one Thomas Rawlins, of Pophills, between the years of 1724 and 1734, occur the following entries. (For these and many such I am indebted to *Notes and Queries*.) "There lives in Mill street, in Belfast, in Ireland, 1731, one Jane Hooks, of one hundred and twelve years of age, who has her memory and appetite as well as when she was but twenty years old, and she has got a new sett of teeth wch has drove out all ye old stumps."

"Robt. Lyon, of ye city of Glasgow, aged one hundred and nine years, who was in service of Charles I and who has got a new sett of teeth, recovered his sight in a wonderful manner."

"Mrs. Page at ye Royal Oak, in Barnaly street, Southwark, aged ninety years and upwards, has lately cut six great teeth in ye upper jaw, in June, 1732. * * * Had not a tooth in her head these twenty years past."

"Margaret White, of Kirkaldy, in Scotland, aged eighty-seven, who has been toothless for many years, has just got eight new and fresh teeth, April, 1732."

This from proceedings of the Suffolk Institute of Archæology: "Dying in 1669 she (the widow of John Croftes) bequeathed it (the Hall) to the Hon. Edward Progers, of London. 'The gay Progers' who, according to Le Neve, died on the thirty-first of December or the first of January, 1713, aged ninety-six, of the anguish of cutting teeth; he having cut four new teeth and had several ready to cut wh. so inflamed the gums that he died thereof.

H. M., in *Notes and Queries*, relates the case of a patient, aged seventy-five, who was laboring under a singular form of mental derangement. Among other points he notes (June, 1843): "A remarkable circumstance in this case is that she has cut an incisive tooth in the lower jaw, and is now cutting another, which fact confirms her in the strange belief that she is leading a post-

mortem existence, and has commenced at infancy again; for upon one of her daughters asking me if I thought it probable she would die, she exclaimed angrily, 'How can I die twice? I am only a child; see, I have not cut all my teeth yet.'"

Another correspondent in the same journal writes: "So far from being an extraordinary case, it really is a most common event, and I will venture to assert that there are very few persons who arrive at my age who have not had three sets of teeth. I can speak from experience. First I had my infantine set; next I had the set which, after serving me usefully for many years, gradually decayed and left me, and now I have a third set from which, I can truly say, I suffered much cost in the cutting by an eminent dentist in the West end—Septuagenarius et plus."

Bacon, in his "Natural History," speaking of the Countess of Desmond, who lived in the "Reigne of King Edward IV," of whom it is asserted that she lived one hundred and forty years, says, "She did dentire (produce teeth) twice or thrice, casting her old teeth and others coming in their place."

To relive the monotony, the following may be in order:

"A group of matrons, seated on the piazza of a popular summer resort, were discussing the pearly teeth of a well known actress, and branched off to criticising the molars and bicuspsids of their friends. 'Will you believe it,' remarked one well preserved personage with a hyphenated name displaying an admirable development of some width and whiteness, 'that my wisdom teeth have not yet grown?' A second of dead silence ensued. It was broken by a male voice from the outer edge of the circle, 'Some century plants never bloom.' The identity of the commentator remains undisclosed."

Turning now to the other extreme, we read that "Marcus Curius, nicknamed Dentatus," had all his teeth at birth; Richard III did the same; and Jacobi reported the case of a Spanish dwarf who was born with all his teeth; and many more such cases could be given. "In the register of burials at Gayton-le-Marsh, Lincolnshire, duly certified to by the curate, is the following: 'Elizabeth Cook, a poor woman, aged eighty-six, who never had a tooth, was buried January 11th, 1798.'"

Since writing this paper Mr. Bates, Librarian of the Connecticut Historical Society, handed me the following from the "Simsbury Records:" "Sarah Slater first Daughter of Elias and Sara Slater was born february the Sixth day 1716-17 which was wensday—11 aclock at night and baptised the 10th day—the 16 day thare apeared an uper fore toot the 19th day at one of the klok after noon it came quit out."

Let us close the section relating to dentition by guessing the following charade, from a little book entitled "A Century of Charades:"

"My first pours out at early teas;
My second's anything you please;
My whole's the cause of much disease." *

Having safely conducted these useful organs on their journey from the "primitive groove" to the light of day, let us see how they have been christened and what names have been given them.

Leaving to the philologist the task of dealing with their various names and their derivations among the many races of the earth from early time, we will direct our attention to some of the more strictly folk-names.

Thus we have "Jenny wi' the Airn teeth," a Scotch painted devil, bogie, or imaginary being with iron teeth, employed to frighten little children into obeying.

"'Tis the eye of childhood
That fears a painted devil."

—*Shakespeare.*

Frederick II, Elector of Brandenburg (1657-1713), was nicknamed Irontooth (*Dent de Fer*). A patient furnished me with the quotation, "Put your green teeth into that," referring, no doubt, to that unsightly, chlorophyllaceous stain often seen on the face of incisors. Another patient informs me that in North Carolina protruding incisors are called "butter teeth." "Buck teeth" has also been used in speaking of this same deformity. Dents barrés, or barred teeth, are the molar teeth when the roots are spread or tortuous, so that they cannot be extracted without being broken, or without a portion of alveolus being removed. Some old-time names for teeth are fang tooth; the eye tooth, wang tooth; a molar, lag teeth, wall teeth, azzle teeth. Axle teeth and cheek teeth are also synonymes for molar teeth. Then we have wit tooth, wisdom tooth, or dens sapientię. The canine has been called eye tooth, dog tooth, and pug tooth, a Devonshire word. The molar has been mentioned as pugging tooth, comparing it to a machine called a "pugging mill," by which clay is worked to blend its materials and render it plastic for bricks or pottery. Pug in Sussex meant a kind of loam.

International.

* Answer, teething (tea thing).

PRACTICAL POINTS.

By Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Treatment of Pulless Deciduous Teeth.—When root filling is impracticable, remove contents, sterilize with 3 per cent. aqueous solution hydrogen peroxide and close open ends of tubuli with cavitine or similar preparation. Fill with gutta-percha or other soft filling. Absorption of the roots is not interfered with, and the tooth will seldom give trouble if carefully treated in this manner.
Geo. S. Allen, International Den. Jour.

To Clean an Oil-stone.—Smear a flat block of wood with glycerine and fine pumice, and rub the stone, face down, till all traces of previous usage have disappeared. This will greatly improve the working qualities of the stone. To ruin an oil-stone clean it with kerosene.
Odontographic Journal.

Root-canal Treatment.—When the pulp is found exposed, vital or partially so, spray with chloride of ethyl; remove; cleanse canal and dehydrate as follows: Wipe well with Ceylon oil of cinnamon and throw hot air upon it for a few moments to vaporize the medicament and cause it to permeate the dentine, rendering the canals and apical space aseptic.

W. T. McLean, Dental Cosmos.

Pulp Protection.—Oxysulphate of zinc is one of the best pulp protectors; easy of adaptation, non-irritating alike to sensitive dentine and to the pulp. When the pulp is nearly exposed, place a small amount of thinly mixed oxysulphate over the bottom of the cavity, allowing a few minutes for it to set, and cover with oxyphosphate of zinc.
G. F. Cheney, Dental Cosmos.

To Lessen the Danger of Cracking Porcelain Facings.—Coat the teeth with shellac. Under high temperature this forms a protecting film of carbon on the facing and lessens the danger of cracking.
J. E. Nyman, Dental Review.

For Sensitive Dentine.—Add carbolic crystals to cocaine hydrochlorate, and rub together till a thick syrup is obtained—escharotic, antiseptic and obtundent, giving gratifying results in the treatment of sensitive dentine. Use rubber-dam, dry almost to dissiccation, apply syrup as above and dry with hot air syringe.
C. B. Rohland, Ohio Den. Jour.

The Röntgen Ray in the Diagnosis of Obscure Cases.—

When the cause of disturbance cannot be found by any ordinarily careful observation, the Röntgen Ray may be of great service, as in case of hypertrophy of the cementum, impacted teeth, unerupted teeth, etc. *Dr. Eames, International Den. Jour.*

A Temporary Crown.—Solder a wire to an ordinary rubber tooth. Contour and retain the crown with gutta-percha.

J. H. Kennerly, Dental Digest.

Handy Application of Varnish to Casts.—A pellet of cotton, held with a pair of pliers, is superior to a camel's-hair pencil, for applying varnish and oil to casts, etc., and there is not the trouble of loosened hairs. *The Phagocyte.*

Vapocaine—a New Dentinal Obtundent.—A fifteen per cent. solution of cocaine hydrochlorate in ethyl ether. Theoretically, on the application of vapocaine to the open ends of the dentinal tubuli in a carious cavity, the ether solution penetrates the tubuli, the ether evaporating and depositing the cocaine salts, which, being dissolved by the natural fluids of the mouth, exert anesthetic effects upon the dentinal fibrillæ. A simple topical application, with the advantages of cataphoresis without its drawbacks. *From McKeon & Robbins.*

Local Anesthetic—Chloral Camphor.—Hydrate of chloral and camphor, equal parts, rubbed up and made in form of solution, can be advantageously used in extracting roots, lancing abscesses, and toothache. It is a valuable anesthetic, anodyne and soporific. *C. R. Taylor, Dental Review.*

The Choice of Filling Materials other than Gold.—(1) Use cement in such teeth as are so wasted that sufficient anchorage cannot be obtained for a filling lacking adhesive qualities. (2) Gutta-percha in obscure and inaccessible cavities; in teeth of soft structure; in buccal cavities at gum margin, and in deciduous teeth. (3) Amalgam in posterior teeth, when cavities are so large that strong walls cannot be obtainable without devitalization of pulps, and where pocketbook will not permit extensive operations in gold. *F. T. Van Woert.*

Cataphoresis.—To insulate a filling in an adjoining tooth, slip a piece of mica down between the teeth.

D. B. McHenry, Items of Interest.

Sensitiveness at Cervical Portion of Teeth.—Dry the tooth, heat a burnisher quite hot and burnish the sensitive part.

Dr. Holt, Am. Den. Weekly.

Setting Crowns with Gutta-percha.—Fit gutta-percha on the post and in the root, and get proper adaptation of crown. Dry the root and paint canal with cajeput or eucalyptus; dry a little and paint again with chloro-percha. Paint gutta-percha on post with chloro-percha; warm and drive home.

Dr. Taggart, Dental Review.

To Prevent Separating Rubber from Injuring the Gums—Protect the gum tissue in the interproximate space by building a bridge of gutta-percha or cement from the gingival portion of the cavity across to the next tooth. *C. N. Johnson, Den. Review.*

Pulp Capping.—A pulp cap must be a disinfectant; an antiseptic; an antiphlogistic, and a non-conductor of thermal changes. To secure the combination apply rubber-dam; remove all débris; saturate cavity with creosote and wipe dry; introduce iodoform, followed by copal-ether varnish a little thicker than cream. Cut asbestos paper to cover; press gently down and varnish over. Oxyphosphate of zinc over this.

W. A. Lee, Ohio Den. Jour.

Gum Tissue in Buccal Cavities.—When the gum has intruded into the cervical portion of a cavity, the excess of tissue may be burnt away with a minimum of pain by means of sodium ethylate.

Robertsham, Dental Record.

Fever Blisters.—These troublesome little ulcers, which often interfere with dental operations, especially when located in the corners of the mouth, are promptly cured by the application of resinol ointment.

W.

Action of Formaldehyde on Soft Tissues—Antidote.—If discovered immediately apply a little weak water of ammonia, followed by a 10 per cent. sol. trichloroacetic acid. If patient returns with slough, cleanse with 3 per cent. pyrozone; apply campho-phenique to relieve pain; dry surface and coat several times with comp. tinct. benzoin.

A. C. Hart, Pacific M. D. Gazette.

Flexible Nerve-canal Drills.—Mandolin wire is cut in suitable lengths, drawn taut, and flattened to about one-half its original diameter. With one end held in a pin-vice, it is then twisted its entire length, a section $\frac{3}{4}$ or $\frac{7}{8}$ of an inch cut off and soldered into an engine-bit, having a socket drilled to receive it; it is then to be sharpened. They are exceedingly flexible, following an opening made with a Donaldson broach. They may come unsoldered, but I have never had one break in a tooth.

A. E. Mattison, Dental Review.

A Substitute for Gold.—A new metal which seems to have the requisites of gold, while less costly, is composed of

Silver.....	3.53
Platinum.....	2.40
Copper.....	11.71

It is elastic and takes a most brilliant polish, is not acted on by the fluids of the mouth, and answers the same purposes as gold. (Translation.) *B. J. Cigrand,, Dental Digest.*

Silver Wire or Bands for Loose Teeth.—The object in using silver wire or bands is twofold—one to hold the teeth in position, the other for therapeutic effect. It has been repeatedly demonstrated that the fixing of pure silver, or nearly pure silver (95 silver to 5 gold, as pure silver corrodes) around the necks of the teeth in close proximity to the gum, acts as a destroyer of the pathologic bacteria found in the mouth, especially the pus-producing bacteria. *A. W. Harlan, Dental Cosmos.*

A Flux for Bridge-work.—Put in a cup

Boracic acid.....	$\frac{3}{4}$ j
Ammonia.....	$\frac{3}{4}$ ss
Carbonate of ammonia.....	dwt. ss
Bicarbonate of soda.....	dwt. ij
Water.....	$\frac{3}{4}$ iv

Boil until fumes of ammonia are no longer given off. Coat the piece all over the gold with the flux. Heat over spirit lamp to dry it on. Give a second coat if needed, leaving no spot exposed. Then scrape off where it is desired the solder shall flow; it will go nowhere else. The work will come out as bright as it went in and the polished surface will not be corroded or blackened. *Western Den. Jour.*

Treatment of Pyorrhea Cases.—After removal of deposits instruct patients to rinse mouth frequently with alum or borax dissolved in rain water, and abstain from soap or soda in dentrifices. Pulverized sulphur makes the best dentrifice for these cases. It is unpleasant, but impress patients with its importance, and for a term of weeks at least.

J. E. Cravens, Dental Review.

An Antiseptic Mouthwash.—Sanitol is markedly efficient in its effect upon the teeth and gums, as a mouth-antiseptic and germicide. *G. H. Bowman.*

To Arrest Bleeding from Extirpated Pulp.—Wind cotton on a broach, saturate with 25 per cent. pyrozone and put up the canal. This will at once arrest hemorrhage after pulp removal also bleeding from the gums. *L. West, Items.*

ITEMS.

It is an invariable maxim that words which add nothing to the sense or to the clearness must diminish the force of expression.

Campbell.

Propriety of thought and propriety of diction are commonly found together. Obscurity of expression generally springs from confusion of ideas.

Macaulay.

How to remove a plaster impression that sticks? Take your air syringe, draw water into it, raise the lip, flood water around the top of the impression, and you will be able to remove it with ease.

J. W. Blair.

Timidity is a disease of the mind, obstinate and fatal; for a man, once persuaded that any impediment is insuperable, has given it with respect to himself, that strength and weight which it had not before.

Dr. Johnson.

BOARD OF DENTAL EXAMINERS OF PENNSYLVANIA.—Examination of applicants for license to practice dentistry in Pennsylvania will be held April 11th, 12th, 13th and 14th in Philadelphia and Pittsburg, and June 13th, 14th, 15th and 16th, 1899, in Philadelphia only. Applications to the Dental Council, Harrisburg, for blanks for the next examination should state in which city the applicant desires examination.

G. W. Klump, Secretary.

PARTIAL CROWNING INSTEAD OF CLASPING TEETH.—I do not believe there is any clasp that will not in time ruin a tooth that is unprotected. My method is to use partial crowning instead of partial claspings. I make a permanent partial crown from the second bicuspid or molar, and upon that I make the removable crown, and over that a vulcanite plate. That not only prevents chemical or mechanical abrasion, but it prevents the plate from infringing on the soft tissues, preserving at all times correct articulation with the upper denture.

Dr. Hofheinz, Cosmos.

DENTAL MEDICAMENTS.—Of all the men I know of, competent to write upon this subject of the evolution of dental medicine, there is no one so well qualified as the essayist. Dr. Truman has been for many years a collector of all the books of every character and language that bear in any way upon the history of dentistry, and it is my hope that before he grows many years older he may be permitted to write a history which will embody the evolution of dentistry throughout, both in medicine and dentistry, so that it may come to us intact, because he is a man particularly fitted for that duty. I was extremely interested in the reference he made to those authors who wrote two, three, and nearly four centuries ago concerning so many operations and methods that are being practiced to-day.

Dr. Register, in New Jersey Convention.

OIL OF CLOVES IN DENTISTRY.—The antiseptic ability of oil of cloves is comparatively low, but its penetrative power probably exceeds that of any drug we use on the teeth. The use of oil of cloves for clearing sections is well known to microscopists, and there are few, if any, organic tissues into which oil of cloves will not penetrate, and thus its especial usefulness is displayed in large cavities where the pulp is covered only by carious dentine, either sensitive itself or at any rate readily transmitting sensation to the pulp beneath. There the beneficial action of oil of cloves is marked, the cavity being swabbed out with oil of cloves on a pledget of cotton, before putting in the cement, the pulp is made comfortable and rarely gives further trouble. This action is probably due to eugenol, which is the principal constituent of cloves and is a local anesthetic.

E. R. Tait, Pac. Med. Dental Gazette.

Temporary sets are beneficial if made so as to be worn with comfort. The patient has the use of them for mastication, and this is most important to the individual with weak digestive powers, whether hereditary, or caused by continued overstrain by loss of masticating organs. Articulation is also important to persons who sing or speak in public. Personal appearance is no small consideration to ladies, particularly those whose duties bring them much in contact with the public. As a protection for the gums they are important. Instead of temporary teeth being an irritation to the gums made sore by extraction of the teeth, they protect the gums from injury, from contact with hard substances of food and from the teeth in the opposite jaw, where

such exist. Temporary sets fill the gaps where any extensive bridging is to be done, and where it may be necessary for any reason to postpone the operation.

R. E. Sparks, in Dominion Journal.

FITTING A PLATINUM CAP OVER THE ROOT.—A Logan crown, the heel of which has been ground away, is then fitted to place over this cap, the pin being simply pushed through without soldering, and porcelain is baked in the matrix formed by the platinum and crown. By stripping off the platinum, the crown has the advantage of having as nearly perfect adaptation to the end of the root as can be obtained. I think the Logan crown is the best one we have for the six anterior teeth, and I might say it is also applicable to the bicuspid, with the addition of a band of platinum, and cutting the pin off to about one-eighth of an inch in length. In crown work I employ porcelain almost exclusively in preference to gold solder, because I think it is stronger and more artistic, and the adaptation can be made more perfect than in any other way I know.

F. T. Van Woert in Cosmos.

The future dentist who is upright, conscientious and intelligent, commanding the respect of the public, will find himself in demand. His strong character will impress itself upon the community in which he lives. It is so in all the affairs of this world. The man who takes advantage of circumstances when they are propitious, always making an honest effort to attain to the best, can obtain almost any position he desires.

The future dentist is being trained for the battle by learned and thoughtful men, and the graduate of to-morrow will be made acquainted with the true elements of success. They will be taught that it is necessary to give close attention to the business side of their vocation, that it is not sufficient to be a technician, a fine operator or prosthetic dentist.

A man's moral standing plays an important rôle in his progress. "Moral qualities rule the world. It's only at short distances that the senses seem despotic."

Our advancement as a profession is what the individual members achieve, and in proportion as our ideas are clear and intelligent, our motives honorable and upright, our ability in advance of the public demand, in that proportion will the future of the coming dentist be secure.

F. P. Cronkite, in Western Journal.

EDITORIAL.

THAT SAILING 'ROUND THE CIRCLE.

Do you remember how I was sailing around the circle of time in last December's BRIEF, and rather thought we would all try it again for another year? Well, I thought I was strong enough and big enough to have my own way, "with nothing to molest or make me afraid." I had hardly sent that winged article to the printer before I was visited by a little fellow that quite disputed my trip. Oh, he was so small and insignificant I laughed at his presumption. But he downed me, and he took off my wings, and left me prostrated. I took my pen in hand to tell you about it in January's BRIEF; but he said: "No you don't." And my pen dropped and I dropped, too.

I have had the grip, or the grip has had me. Do you know what that means? I hope not. Don't beg for it; it might tackle you just for the fun of seeing you squirm. The little fellow came to me quite unbidden. He was so small I couldn't handle him, but he handled me with a vengeance. He threw me the first round, and then pounded me most unmercifully. I called in a great, strong fellow seven feet six, weighing eight hundred pounds, to help me. He said he was bully on the grip; but it took him four weeks to make the little fellow lose his hold, and then only to have him tackle the doctor. I haven't seen him since. That is the grip—no, nor the doctor either; for I am now as much afraid of his sharp bill as of the teeth of the microbe. Good riddance to both of them. A minister came too; but he was to blame for my unwelcome visitor. I had written him that his poor sermon or the devil in his atmosphere had given me the grip; for it grabbed me while hearing him preach. He came to convince me it must have been the devil. If so, he must have taken his majesty with him when he left me, for he has been in bed ever since, and I have got well.

Never mind others' ingratitude. Shine on, oh, noble soul. "It never troubles the sun that some of his rays fall wide and vain into ungrateful space and only a small part on the reflecting planet."

LIFE: WHAT IS IT AND WHENCE ITS SO

This is an old question, and one science can never fully answer. Yet there are some very interesting suggestions that may claim our attention.

It is difficult to think of yourself as a bundle of lives. And yet our life is certainly compound. It is more than the life of the flesh. There is the life of the spirit, the life of the mind, the life of the soul, as well as the life of the body.

But let us not venture too far beyond our depth. We shall find quite enough to employ our present attention if we ask only: What, when and where is physical life? But does not the very form of our question show a limitation of our thought? Does it not show ignorance, indefiniteness and want of scope? Should we speak even of the body as of a unit of life? I know we naturally think of our physical life as a very simple thing, and perhaps never as a multiple of lives—a multiple of lives constantly coming and as constantly going—lives of life in every part, and in every stage of being. What is a minute cell but an independent life? And even this life a life of lives?

But all theories have their extremes. There are biologists that tell us all these microscopic discs are individuals, of which the whole body is the multiple. That each bear the same relationship to the body as do citizens to a nation. Yes they go even farther, and claim that the life of these embryonics is independent of previous life—a life within itself—and that even their death is but the beginning again of life—actually making a part of a thing superior to the whole, and a life of a part greater than the life of the whole. They are not individuals, though component parts of a whole, each having its special character, place and function. The unit of which the multiple is a muscle differs widely from the unit whose multiple is bone, or nerve, or lung. Each has a life, a place, a work of its own; and though all are found in the blood, each is distinct in its character, its activities, its growth, and its purposes and place. This unit seems almost to have intelligence or instinct as it travels to where it belongs and finds its exact place at the exact time of its being wanted. A muscle cell does not

make the mistake of passing to a bone, nor a mucous cell to the brain, nor one that is intended as a component part of the heart to crowd itself among the cells of the toe nail. Neither does a cell leave the blood for its final resting place till it is fully matured, and it matures just in time to take its place just where and when it is wanted. From its birth in the pabulum, of the food through the mesentary glands, as it mixes with the venous blood to the heart, and thence for farther vitality to the lungs, there is a growth and a maturity fitting it for its final journey to its predestined home and work in muscle, membrane, or organ. And it is not idle while on its way; for it is no sooner well formed into cell life than it gives out life. It actually divides itself up into new cells of precisely its own character, and these again dividing and subdividing, each a unit and identity of its own; and all hastening as by some inspiration or instinct to its allotted place to build up tissue. In fact the blood circulation is the great highway for the multiplication and maturity and onward progress of the red and the white corpuscles to the tissues each is designed to build up.

Another mystery meets us here. Though these are minute units of life, the substance of which they are composed are simple inert chemical particles, as is the structure of which they are to form a part. Notwithstanding this assertion, I know every particle of both cell and the compound tissue of which it is a part are held together by a vital bond, and it is by a vital affinity and force only that they are operated.

But pray do tell us what this mysterious force and affinity is? This something that causes lifeless matter to assume form and motion and intelligent function, that attracts and repels, assorts and selects, that works its own sweet will and creates laws and holds all it grasps to a strict account as lord of all it creates? What is it? Where is it? Whence came it? And why does it as mysteriously pass away? Ah, let us honestly acknowledge that no science can tell. Let us humbly bow to revelation as our only source for both light and the light of life, and let us do homage to the great Author of both light and life, "for in Him we live, and move, and have our being."

WHO SHALL BE JUDGE ?

We sometimes have patients ask to have specific teeth filled, while other teeth needing attention quite as much are to be neglected. What shall we do? Such broken-down, carious teeth will be a constant menace to the work our patient would have us do; and yet, if, by and by, the acrid decay of their neighbors causes defect in our work, the blame will be placed on us. And so, also, we have patients who will persist in having this and that tooth filled in a mouth full of all manner of foulness, but unwilling to spend a cent for a general cleaning of the mouth and teeth. Shall we indulge them? How would a physician act if a patient came to him for specific treatment when there were other ailments quite as important calling for attention, and which complicated and compromised the complaint sought to be relieved? He would assume to be his own judge of his course, and would resist such dictation.

Of course, if the want of means or time makes it necessary to divide the work, there is a reason for first doing the worst; but even then we should be the judge of what is the worst. But where the mouth is to remain indefinitely in a foul, diseased condition, we would do better to refuse to proceed, and politely refer our patient to some less scrupulous dentist. Better have less patients than less reputation.



MIND CURE.—A pleasant story of mind cure has recently reached us. A lady who had nervous prostration, and suffered greatly from seeing spiders, mice, and rats running about the room and on her clothing, wrote to a prominent physician describing her trouble, and asking for a prescription. He sent her a powder, with careful instructions as to when to take it, and assured a cure. Some time afterward the lady met him, and wished to know the composition of the wonderful remedy that had succeeded when all others failed. The doctor told her that as she had seemed to suffer chiefly with spiders in her delusions, he had given her the pulverized corpse of a tarantula!

WHICH SHALL BE YOURS ?

Duty, under a hard task-master, dragged his slow length along, burdened, exhausted and forlorn. Inspiration fired his soul, and the exacting task-master fled. Heavy duty changed to light-bounding privilege, and sprang forward with delight. The steps became elastic, burdens were playful babies, the spirits were lightened, and the whole life was a pleasure.

A cold, dark, fearful spirit, long-visaged and sad, chid with a light-hearted maiden, as she danced along the way. He checked her in her joyous mood, and assured her the life before her was a wilderness of woe, leading to the dark vale of death. Her spirits fell, her heart ached, and her life faded. Truly a wilderness surrounded her, darkness appalled her, and life was a burden. An angel brushed by her skirts, and bid her look again: The wilderness blossomed as the rose, and there were vast fields of luscious fruit, with everything sparkling and bright. The cold, dreary night had changed to a beautiful morning, and the shrouded blackness of the valley of death was only a shadow which heaven swept away. She had entered on a path which was to grow "brighter and brighter even to the perfect day."

I saw a careworn traveler, lone and weary. He had the whole world on his shoulders. He was bowed down, and his eyes were cast downward. All his interests were material, and he knew no pleasure but in hoarding. For this he was bartering body and soul. A little child hailed him—a bright little child that sought to attract him. Soberly and demurely he cast her aside and trudged on. Light-footed and gleeful, the little cherub climbed to his shoulders, and lo, his burden fell off! And as she smoothed back his shaggy locks, and drew back his bowed head, he looked up to find the little one had brought sunshine to his dreary path. She tickled his chin and kissed his cheek till, with very merriment, he tumbled on the grass. They played together, and laughed and chatted and romped till the coldness and gloom, hard-heartedness and selfishness, sordidness and strife for pelf, were forgotten. You should have seen him just rolling and rollicking with innocence and love till he himself was young again.

An old man was tottering down the hill of life, lonely and lonesome, unloved and unlovable. Weak, decrepit and spiritless, life, like the day, was waning.

"Where are you going?" said a stranger.

"To the grave," he replied.

"And where then?"

"To oblivion."

"Have you, then, lived as an animal, that you should die like a beast?"

"I envy the beast, so without care, or reason, or aspiration above the grass he eats. With greater labor than the beast of burden, and with more diligence, I have spent all my life climbing a rugged mountain to find the home of fame, and it proved but a barren rock. I am now tottering down to find—eternal death."

"Oh, my friend," replied the stranger, "is it possible that this is the dismal end of all your fame-seeking and ambition? Is this to you the night that shall know no dawn? The sleep that shall know no waking? The life that shall know no life beyond? Ah, sir, I have eyes that you have not, ears that with you are deaf, and a spirit that with you has been smothered. With me is the King in His beauty. He is the warmth of my soul, the food of my life, and the inspiration of my spirits. He has made me His home, and we sit and live and love together. He has so changed my heart that it is a beautiful lens, radiating His glory, and through which I can see Him, and know Him, and appreciate His loveliness. I can see heaven, and, turning it earthward, all is aglow with the scintillations of His light and heavenliness. I eat of the tree of life, and shall never die. Old age and its decrepitude and loneliness and blindness and darkness will never come. Mine is an eternal youth. When He has done with me in this world, He will open to me the gates of heaven, and through a flood of glory I shall enter in. I have already entered on eternal life."

The poor old man rubbed his eyes, but could not see; he sought to feel something of the stranger's inspiration, but his spirit was stifled; he strove to bring life back, but he had bartered all that was precious for the physical and temporal—and *lost*.

BRIEFS.

A measure of pleasure may come from mere fun, but permanent happiness comes from well doing.

Fifty-one metals are now known to exist. Four hundred years ago only seven were known.

If we use superlatives for everything we say, how shall we express the really great or small?

In language the unknown is generally taken for the magnificent, but really it is the fog that hides what would otherwise be seen plainly.

Anatomists, to separate the bones of a skull, frequently fill it with small beans and place the whole in a basin of water. The beans swell and slowly split the skull.

Inaccurate writing is generally the expression of inaccurate thinking; and words and thoughts are so inseparately connected that a skilful handler of words is generally skilful in thinking.

THE DEAD MAN IS ALIVE.—In December issue of the BRIEF we spoke of Dr. Benjamin Lord as "the late Benjamin Lord." We beg pardon. He is alive and as good and popular a dentist as ever.

Our friend, Prof. L. P. Haskell, of Chicago, has had a fine time abroad, and comes home to receive a royal ovation commemorative of his fiftieth anniversary of married life. Prof. Haskell is a popular man, and deserves to be, for he has been of great service to the dental profession, and is still one of the best teachers in prosthetic dentistry in the profession.

CLIPPING HORSES.—The idea that a horse's digestion and general condition are improved by clipping his coat is an absurdity. A horse cannot digest his food if he is constantly shivering, and blankets cannot take the place of his hair for warmth. The greatest exponents of clipping are grooms who are too lazy to thoroughly groom a horse which has a long coat of hair. It is utterly useless to try to improve on nature in that respect, and clipping should be discontinued as a barbarous practice.

In our perplexities of work and study we make every case a subject of special interest, instead of trying to jump over it or around it, any way to avoid it, and thoroughly master it before leaving it, or at least as much as it is possible, we shall soon work on familiar ground, and have fewer occasions for doubts and fears.

We can learn much from reading, conversation and debate, but unless we husband the instruction we receive and make them our own by experiment and practice, they will be of little use.

Be decided. Vacillation has been the ruin of many. A man of decision is generally a man of thought and energy, of deliberation and careful planning, of ponderous blows and steady step, always with face to the front.

Vacillation comes generally from superficiality in work and deliberation, dimness of conception and weakness of conviction.

One man of decision, and strong will, and matured purpose will control a dozen weak whiffing weather cocks; and make for himself a place of strength and substantial reward, while they are passing into oblivion.

In the treatment of pyorrhea, perhaps the use of peroxide of hydrogen is among our best remedies. After its application, the pockets are well washed with water as hot as can be borne. If the removal of the deposits causes very much pain, use a solution of cocaine syringed into the pockets. If this fails to produce anesthesia, inject it hypodermically into the tissues. When the deposit is all dislodged, wash it out of the pockets with hot water, getting the syringe quite to the bottom of the tartar. Then treat the pockets with lactic acid, protecting the tissue around the tooth from the action of the acid by the application of glycerol. If there is a recurrence of the trouble, it is probably because all the tartar was not removed.

CORSETS.—A curious regulation has recently been enforced in Russia in the interests of hygiene. The Minister of Public Instruction has issued a decree prohibiting the wearing of the corset by young women attending high schools, universities, music and art schools. The decree is based on the demands of public health. What the young women think of it, history deponeth not.

CONSUMPTION OF AIR.—It is computed that when at rest we consume 500 cubic inches of air a minute. If we walk at a rate of one mile an hour we use 800; two miles, 1,000; three miles, 1,600; four miles, 2,300. If we start out and run six miles an hour we consume 3,000 cubic inches of air during every minute of the time.

Runaway accidents seldom occur in Russia. The means used in preventing them is very simple. In Russia a horse that is addicted to the habit of running away has a thin cord, with a running noose, around his neck, and the end is tied to the dashboard. When a horse bolts, he always takes the bit in his teeth, and the skill of the driver is useless; but the moment the pressure comes on the windpipe the horse knows he has met his master.

A new process for the extraction of gold has been tried with success in the gold district of New Zealand. The finely-powdered auriferous ore is first mixed with common salt and sulphuric acid, and potassium permanganate is then added in solution. The new method is said to have many advantages over the cyanide and amalgamation processes. The chemicals used are harmless, non-poisonous, and cheap, and the extraction of gold from the ore is nearly complete.

GLYCERINE AS A MEDICINE.—This simple and agreeable remedy is receiving more attention from the profession as an internal medicine. It exerts a beneficial influence on nutrition, and may with advantage be administered in the place of cod-liver oil. Certainly, reports of its action in phthisical cases as palliating many distressing symptoms are of importance. It reduces night sweats, improves weight, and appetite, and contributes to refreshing sleep.

LIQUID AIR.—It has been shown by recent experiments that the power of germination with plant seeds is not destroyed but only suspended by extreme cold. It is impossible to produce any more intense cold than that obtained from liquid air. Seeds of barley, cucumbers, peas, sunflower, and some other plants have been kept in liquid air 110 hours. When taken out and carefully and slowly thawed for 50 hours and planted, they have sprouted as well as if they had never been frozen. Life had merely been suspended.

FOR OUR PATIENTS.

BEASTS, BIRDS AND FISH.

There are 10,000 camels at work in Australia.

A farmer near Decatur, Ala., has raised a hog which weighs 1,524 pounds.

A tannery to tan the hides of dogs and wolves has been established in Cheyenne county, Kan.

There are four States in which mules are very numerous—Missouri, Texas, Georgia and Tennessee.

Ostrich taming is a very profitable industry in Africa; here it is computed there are over 150,000 tame birds.

The nests of termites, or white ants, are proportioned to the size and weight of the builders, the greatest structures in the world.

Probably few people who visit London are aware that one of the most novel sights of the great city is that of the pigeons round the public buildings.

The insect known as the water boatman has a regular pair of oars, his legs being used as such. He swims on his back, as in that position there is less resistance to his progress.

Personally conducted tours to Somalland, with a chance to shoot at lions and other large game, are advertised by a London tourist agency. The trip will last three months and cost \$3,000.

In an effort to cope with the rabbit pest in New South Wales 632 miles of rabbit-proof fencing have lately been erected, and 404 miles of similar fencing are being constructed.

The cries of sea birds, especially sea gulls, are very valuable to sailors in misty weather. The birds cluster on the cliffs and coast, and their cries warn boatmen that they are near the land.

Lord Strathcona has presented his fine herd of buffaloes to the Canadian Government. The herd is said to be the only one in the Northwest, and will be removed to the Banff National Park.

Cats can swim if they only care to exert themselves sufficiently. The ancient Egyptians used to fish with them on the Nile, according to the representations on walls and so forth that have come down to us.

Natal's hippopotamuses are extinct. The last herd was protected by the government on a reservation near Durban, but did

so much damage in the surrounding sugar plantations that orders were given to have it destroyed.

So small a creature as the beaver, according to Mr. H. B. Woodward, of the British Museum, has changed the character of a considerable portion of the British Isles to a remarkable degree. The borders of the fens were once covered with forest, and the beaver was one of the most plentiful animals of the region. Its dams turned the streams from their natural courses. The water—as in the valleys of the Lea, the Ouse, the Cam and the Nene—was thus made to flow over the country at random, the valleys gradually becoming stagnant areas filled with a bog moss, and forming what we know as the fen lands.

IRON MADE RED HOT WITH WATER.

One of the astonishing things developed through the introduction of electricity into every-day affairs is a forge, made for bench use, for the heating of soldering irons or light pieces of metal for working on the anvil, where the heating is accomplished by plunging the article to be heated into a tray of water. Nothing could be imagined more contradictory of one's preconceived ideas than this procedure, and yet to the electrician it is perfectly simple.

He makes the proper connections, plunges his iron into the water, and pretty soon the iron will begin to glow under water and then to turn red or white hot, just as he desires it for working. When he gets through working the iron he may plunge it into the water again and cool it with a “siss” as expeditiously as he could in any other tank of water. This curious forge is made as follows:

The tank is of wood or of any other substance which will hold water and not form an electrical conductor. One wire of the electric circuit passes to the bottom of the tank, where it is connected to a plate of metal which lies there. Over this plate water, preferably saturated with salt, fills the tank nearly to the top, and serves to conduct the current to whatever object is to be heated. Nothing could be better for this purpose, for the water naturally closes all about the object and fits it on every side.

The other end of the current-conducting wire is fastened to the tongs or led to a metal frame work at the edge of the tank on which the tongs or the shank of a soldering iron lie when it is to be heated.

The moment the object to be heated is plunged into the water a current passes from the water through the object, and at the same moment some of the water is decomposed by electrolytic action. The nitrogen of the water becomes electrified, and adheres to the object to be heated, and forms a film of gas, which separates the object completely from the water, while at the same time this gas forms such an obstruction to the passage of the electric current that the energy of the current is turned into heat.

Electric forges of various designs are coming into use in place of fires for many of the blacksmith's operations. One of the new ones offered to the trade is arranged with one of its electrodes mounted at the end of an ordinary anvil, while the other electrode is swung above, where it can be drawn down by the pressure of a foot upon the pedal. The arm above has a wheel-like revolving head, and at the end of the spokes of this wheel are blocks of metal of various forms adapted to fit the objects to be heated. The blacksmith turns down the form that suits his work, presses his foot on the pedal and watches until he has a proper heat, and then, releasing the arm, forges and finishes his work on the very anvil where it was heated.

Such clever tools cannot, of course, take the place of the old bellows and fire for isolated shops, but in factories they are rapidly being introduced.

Sun.

ALMOST A NATIVE.

"Are you a native of this parish?" asked a Scotch Sheriff of a witness who was summoned to testify in a case of illicit distilling.

"Maistly, yer Honor," was the reply.

"I mean, were you born in this parish?"

"Na, yer Honor. I was na born in this parish; but I'm maist a native for a' that."

"You came here when you were a child, I suppose you mean?" said the Sheriff.

"No, sir; I'm jist here about sax year noo."

"Then how do you come to be nearly a native of the parish?"

"Weel, you see, when I cam' here, sax year sin', I jist weighed eight stane, an' I'm seventeen stane noo, sae ye see that about nine stane o' me belongs to this parish an' the ith'er comes from Camlachie."

AN ELEPHANT'S MOUTH.

Whoever has looked inside an elephant's mouth has seen a strange sight. Elephants have no front teeth, and they never eat flesh or any food that requires tearing apart. Eight teeth are all they have, two above and below on each side, huge yellow molars as wide as a man's hand, and about two inches thick. Over these hay and fodder is shifted by the queerest, ugliest tongue in the whole animal kingdom, a tongue that is literally hung at both ends, having no power or movement except in the middle, where it shifts back and forth from side to side, arching up against the roof of the big mouth like an immense wrinkled pink serpent.

There is nothing stranger than the working of an elephant's tongue, unless it be the working of his breathing apparatus when he sleeps. Elephants, like human beings, have two sets of teeth—the milk teeth, which are smaller than the permanent molars, fall out when the animals are about 14 years old. These baby teeth, which are, nevertheless, enormous, are occasionally picked up by circus men among the fodder, and preserved as curiosities.

IT DOES MAKE A DIFFERENCE.

A New York surgeon connected with one of the post-graduate medical schools of that city was one day on the point of lancing a felon for one of the students, a young Southern physician, relates the *Youth's Companion*. The patient paled at sight of the knife. "It won't hurt," observed the surgeon, with a sympathetic smile. "I sometimes think," he added, "that it is well for a surgeon to feel the point of the knife at least once in his life. I saw my first hospital service in this city with Dr. S.," he went on, "and no better surgeon was then to be found in America. He had a large dispensary clinic, and rarely a day passed that one or more cases of felon did not appear. 'It won't hurt' was always his comforting assurance to the patient. The old doctor was very irritable if a patient made any outcry or bother over the lancing of a felon. 'Put your finger down there,' indicating the edge of the table, 'and keep still!' he commanded; and, truth to tell, patients as a rule made little fuss. Time passed on, and in the mutations of life, Dr. S. had a felon on his left forefinger, and it was a bad one. He poulticed it and fussed with it for about a week, and walked the floor with pain at night. At

last it became unendurable, and he went to his assistant surgeon, and said nervously:

"I say, doctor, will you take a look at my finger?"

"The assistant surgeon looked, and remarked gravely: 'That ought to have been lanced before.'

"Possibly; but ——,' said Dr. S., and then, with a long breath, 'perhaps you'd better lance it now.'

"Certainly,' said the assistant surgeon. 'Put your finger on the table.'

"Dr. S. complied, and, with a face as white as paper, watched the knife. 'Be gentle,' he cautioned; 'that's an awful sore finger!'

"It won't hurt,' remarked the assistant surgeon, and the sharp steel descended.

"There was a howl of agony from Dr. S., and, with his finger in his other hand, he danced about the room, crying, 'oh! oh! oh!'

"Why,' remarked the assistant surgeon, 'I have heard you tell patients hundreds of times that it didn't hurt to lance a felon.'

"No doubt, no doubt you have!' groaned Dr. S. 'But that depends on which end of the knife a man it at.'"

LAZIEST PEOPLE ON EARTH.

The laziest and direst people in the world have recently been discovered in the Caucasus. They live in an inaccessible mountain range between the Black Sea and the Caspian Sea, and as they were 2,500 years ago, so they are to-day. Seen from without, there is a certain picturesqueness about a Svanctian village, although it merely consists of miserable stone hovels without any attempt at form or adornment. Within the houses are inconceivably filthy. They are filled with rags, vermin and dirt of every description. They possess no fireplace or chimney. All the cooking, in fact, is done over a hole scooped out in the middle of the floor. In these houses men and women and children are huddled together; during the long winter months they are shut in for days at a time, the cattle often sharing their quarters. Every aperture has to be closed on account of the cold. This long imprisonment is, perhaps, the cause of the degradation of the people. Horrible diseases result from it, which are aggravated by abnormal consumption of arrack, the strong distilled drink of the Asiatics.

Besides this, it is an invariable rule to make four days a week

holidays, with saints' days as extras. Since they have adopted the holidays of every other country with which they have been in contact, it is not surprising that the men find little time for work. Farming, bee culture and cattle breeding are the only industries of these people, while throughout their territory there is not a single manufactured article.

Information.

LESSONS IN ETHICS.

1. Three things to love: Courage, gentleness, affection.
 2. Three things to govern: Temper, tongue, conduct.
 3. Three things to contend for: Honor, country, home.
 4. Three things to delight in: Frankness, freedom, beauty.
 5. Three things to wish for: Health, friends, contentment.
 6. Three things to oppose: Cruelty, pride, ingratitude.
 7. Three things to avoid: Idleness, gossip, familiarity.
 8. Three things to admire: Power, dignity, grace.
 9. Three things to strive for: Wisdom, truth, goodness.
 10. Three things to practice: Politeness, charity, self-control.
 11. Three things to cultivate: Cheerfulness, attention, independence.
 12. Three things to think about: Life, death, eternity.
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FORTY-MINUTE MOTORS TO THE SEA.—If the reported plans of a number of Chicago capitalists are consummated, a line of motor cars will be established before next summer between Camden and Atlantic City which will make the single trip in forty minutes. W. J. Haerter, of Chicago, who seems to be the active spirit in the enterprise, is quoted as saying that "the capital of the proposed line, amounting to \$3,000,000, has all been furnished, and the right of way has been obtained. The car which we will use is run by a new motor, the power being derived from refined gasoline, and is adapted for use on standard railroad tracks. Each car supplies its own power. While the cost per mile of operating a trolley car is 6 cents, that of running this gasoline car is only 2 cents per mile. I believe that in a few years the new motor will revolutionize present methods. We have now a model car in Chicago, which will soon be given a test run.

"In addition to the Atlantic City line, we propose to establish in all large cities lines of horseless coaches, operated by compressed air. We will transport a sample coach to various cities, though our present objective points are New York, Philadelphia, Brooklyn, Boston, Baltimore, Washington and Chicago. It is expected that lines will be in operation before July 1st, 1899."

THE SOUTHERNMOST CITY OF THE WORLD.—Punta Arenas is the southernmost city of the world. It is at the bottom of the South American continent, 1,200 miles nearer the south pole than Cape Town, at the lower end of Africa. It is 7,000 miles south of New York, and its latitude is that of Labrador. Still its winters are warmer than those of Washington City, and at its coldest, everything is covered with green.

Situated on the northern coast of the Strait of Magellan, midway between the Atlantic and Pacific Oceans, more than a hundred miles north of Cape Horn, Punta Arenas is the commercial capital of a vast region of sea and land which is almost unknown to the rest of the world.

CHILDREN'S APPETITES.—To promote children's appetites there is no better plan than to give them plenty of outdoor exercise, fun and frolic; make them regular in their habits, and only upon plain, nourishing food, and they will seldom, if ever, complain of a lack of appetite. Never, however, keep them overtasked in school, or confine them closely to the house after school hours, nor frown down any attempt at play. If children are reared upon rich or highly seasoned foods, nuts, etc., or are allowed to eat between meals, it is hopeless to expect them to have an appetite for their proper meals. Don't allow them to study very long at a time, but especially keep them from reading the "penny dreadful." Sickness is the most expensive nuisance in the world, and although sometimes it makes people or children better, it generally makes them selfish, sad and misanthropic, mean and miserable. The best way to make children happy and good is to keep them well.

Information.

Whatever your sex or position, life is a battle in which you are to show your pluck; and woe be to the coward. Despair and postponement are cowardice and defeat. Men are born to succeed, not to fail.

Thoreau.

DENTAL BRIEF.

VOL. IV.

MARCH, 1899.

No. 3.

ORIGINAL COMMUNICATIONS.

"TOTHE-LORE."

Dr. George L. Parmele, Hartford, Conn.

CONCLUDED FROM FEBRUARY BRIEF.

In "Winter's Tale," iv 2, Autolycus, referring to his molars, sings:

"The white sheet bleaching on the hedge,
With, hey! the sweet birds, O how they sing!
Doth set my pugging tooth on edge;
For a quart of ale is a dish for a king."

Nares, in his collection, says, "There seems to be sufficient reason that it means thieving in the song of Autolycus, as pugging occurs for a thief in 'Roaring Girl.'"

Then we find "toodle," a tooth; "bridle teeth," bicuspid, and "snaggle teeth," irregular teeth. To have a "love tooth" signifies having an inclination to love; and in Lyly's "Uphues and his England" we find, "Beleeve me Philantus, I am now old, yet have I in my head a love tooth." Gat tooth, goat tooth (from Saxon gaet), goat toothed, is having a licoriced tooth. Chaucer makes the wife of Bath say, "Gat toothed I was, and that became me wele." Having a goat or licoriced tooth signified one who was wanton or lustful. In 1742 gag tooth signified a projecting tooth. "The poets were ill advised that fained him to be a lean, gag toothed beldame."—*Nash*. Gang teeth in animals were those which protruded from the mouth. In some instances in early England "tooth" expressed keep or maintenance. Toothy was (1) peevish or crabbed, (2) having many or large teeth; and tooth hod signified fine pasturing.

Let us glance an instant at some ideas of the people as to irregularities of the teeth.

"Teeth wide apart is a sign of good luck" is an English saying, and the French have an equivalent. The Welsh assert that a division between the two front teeth means wealth; if you can

pass a sixpenny-piece through it, wealth and wisdom are promised.

In some sections of Scotland they say, "If the front teeth are wide apart it shows there exists a fondness for the opposite sex," or, as an old woman of Aberdour expressed it, "There is an indication of lightsome character." In other sections of Scotland this space between the incisors presages that the person will be short lived.

Having, in compliance with the directions of Mrs. Glass, of cook memory, caught our teeth touched upon their nomenclature, and dipped into their irregularities, what means has folklore furnished us to keep them from being

"By the sharp tooth of
Cankering eld defaced?"

—*The Schoolmistress, Shenstone.*

With charms which rival and outnumber the dragon's teeth sown by Cadmus. A few of these charms follow:

A Hartford lady, eighty-four years of age, gave me this charm for permanently preventing toothache: "Get down upon your knees and pick up a bone with your teeth. Arise and take as many steps forward as you hope to live years; then return to your starting point and deposit the bone on the earth as you removed it therefrom." There is a Chinese superstition that extract of dandelion renews the youth, hair and teeth. If you pick your teeth with the nail from the middle toe of an owl, you will never have toothache.

It is one of the superstitions of the Rio Grande that if you cut your finger nails every Friday you will never have toothache. The same idea prevailed among the Pennsylvania Dutch. A variant given me by an old nurse directs that you must never cut the finger nails of a child before it is a year old, for fear it will become a thief.

In the "far East" it is believed that the child will be exposed to wickedness if its nails are cut during its first year, but after that age regular cutting on Friday preserves it from toothache.

The Tuscarora Indians had a custom which they supposed would keep the teeth in their normal condition through life. A snake was held at length by its head and tail. One should bite into it all along the back-bone from head to tail, and thenceforth perfect teeth would be your possession.

I have many other notes in my collection (some of which I have published) showing this to be a quite common custom. A charm to prevent toothache in Wiltshire, England, "is a want's

(i. e., a mole) fore-legs and one of his hind-legs worn around the neck in a bag." The Romans used to hang beads of coral on the cradles and around the necks of infants, to "preserve and fasten their teeth" and "save them from the falling sickness." This amulet was also a preventive for various ills. In Cornwall, England, toothache was speedily and permanently cured by biting from the ground the first fern that appeared "in the spring." In "The General Dispensatory Containing the Doses, Virtues, and Uses of the Simples and Compounds, 3d ed., London, 1773," is the following:

"*Lapis Medicamentosus (the Medicinal Stone)*.—Take alum, litharge, bole-armenic or French bole, colcothar of green vitriol, of each, three ounces; of vinegar, a quarter of a pint. Mix and evaporate the moisture 'till they grow hard. The use of this is to fasten the teeth, preserve the gums, to heal and dry up wounds and ulcers. It is also employed in injections and eye waters."

Should these prophylactic measures prove inefficient, in lieu of the large number of "new remedies" which are continually putting in an appearance, let me recommend some of the following, which have at least the prestige of antiquity, and will probably, in many cases, be quite as reliable as some of our modern "cures."

Among the many musty tomes into which I have dipped is the first medical work printed in the Englished language, and entitled:

THE BREUYARY OF HELTHE

—IMPRYNTE AT LONDON—

in Fletestrete at the Syne
of the George next to
Saynt Dunstones church
by Wyllym Myddelton in the
yere of our Lorde
Mccccxlvii
the xv daye
of July

THE-97-CAPPTLE DOTH SHEW OF A MANNES TOTHE

A tothe **D**ens is the latyn word. In greke it is named Odon. In englysh it is named a tothe. A tothe is a sensyble bone, the which beyng in a lyvinge mannes heed hath felynge, and so hath none other bone in mannes body, and therefore the tothe ache is an extreme payne

C THE CAUSE OF THE PAYNE

¹² This payne dothe come either by a humour descendyng out of the heed to the teeth or gumes, or it may come by corodyng, or eatyng of wormes, or it may come of corruption lyenge and beynge upon and betwyn ye teeth, or it may come by drynkyng of hote wyne, eatyng of hote spices, or eatyng of hote aples, peares and such lyke, or it may come of a hote lyuer or stomake.

C A REMEDY

Fyrst purge the heed with pilles of cochte. And use gargaryces. And if it do come of any colde cause, chew in the mouth diuers tymes the roote of horehounde. And if it do come by wormes, make a candell of waxe with henbane sedes, and lyght it, and let the perfume of the candyl enter ye toth, and gape ouer a dysse of colde water & then may you take the wormes out of the water and kyl them on your nayle, the worme is lytle greater than ye worme in a mannes hande and beware of pullynge out any tothe, for pull out one and pul out mo. To mundryfy the teeth washe them eury mornynge with colde water and a lytle roche alome.

In Newfoundland "toothache is charmed away by muttering certain words while applying the finger to the spot, or by tying so many knots on a fishing line. But the most effective cure for it is a written charm inclosed and sealed up, the contents of which must be concealed from the party afflicted, and worn around the neck." The following is a copy of one of these:

"I've seed it written a feller was sittin'
On marvel [marble] stone and our Lord came by;
And He said to him, What's the matter with thee, my man?
And he said, Got the toothache, marster.
And He said, Follow me, and thee shall have no more toothache."

"A woman of Chance Cove, Newfoundland, said she had tried everything for this 'hell of all diseases.' She had worn 'Our Lord's letter' for a fortnight without avail."

In my collection these exhortations are in great variety, and from some such one as the following, used in Devonshire, England, they probably all originated:

"All glory! all glory! all glory! be to the Father and to the Son and to the Holy Ghost." "As our Lord and Saviour Jesus Christ was walking in the garden of Gethsemane, He saw Peter weeping. He called him unto Him and said, Peter why weepest thou? Peter answered and said, Lord, I am grievously tormented with pain, the pain of my tooth. Our Lord answered

and said, If you will believe in Me ,and My words abide with thee, thou shalt never feel any more pain in thy tooth. Peter said, Lord, I believe, help my unbelief, in the Name, &c.

"God grant M. N. ease from pain in the teeth."

Amber was said to have great electric and medicinal power when worn as beads around the neck and pulse. It would cure sore throat, ague, and toothache, and would drive away snakes.

Buffon, in his "Natural History," says, "The people believe that a piece of the rope with which a criminal has been hung is a cure for quartan fever, colic, sciatica, and toothache." In Spain, to kiss an unbaptized child before any one else has done so is a panacea against toothache. In South Northampton, England, "A tooth taken from the mouth of a corpse, enclosed in a bag, to be suspended from the neck, was esteemed highly." In Staffordshire it was carried in the pocket. A Newfoundland man, as a last resort to cure this "ugly monster," scraped some dust off a tombstone and drank it in water, without effecting a cure.

Among the Indians of Connecticut, according to De Forest, "toothache seems to have been common; and Roger Williams records the ludicrous fact that, while they could endure every other pain with fortitude, this was too much for their resolution, and would make them cry and groan after a most piteous fashion." For curatives they employed sweating and purgative herbs, but placed most reliance upon "a set of men called powwows."

The natives of the Rio Grande made use of a tea of the little lemon-perfumed berries of the "colima." A favorite early English cure was to drive a nail, sometimes taken from a coffin, into an oak tree.

In various portions of the world a worm is considered the cause of this dire malady.

In Germany the pear tree was appealed to:

"Pear-tree, I complain to thee;
Three worms sting me."

The Chinese, as you know, believe in the worm, and in New Zealand this charm was used:

"An eel, a spineyback;
True indeed, indeed: true in sooth, in sooth.
You must eat the head
Of said spineyback."

Shakespeare says:

"*D. Pedro.* What! sigh for the toothache?
Leonato. Where is but a humor or a worm."

In Derbyshire, to extract the worm, "a small quantity of a mixture of dried and powdered herbs was placed in a teacup or other small vessel and a live coal from the fire was dropped into it. The patient then held his or her open mouth over the cup and inhaled the smoke as long as it could be borne. The cup was then taken away, and a fresh cup or glass containing water was put before the patient. Into this cup the person breathed hard for a few moments, and then, it was supposed the grub or worm could be seen in the water.

In Orkney, toothache is called the worm, and, as a remedy, what is known as "wormy lines" is written on paper and carried about as a charm.

Among other resources may be mentioned: Rubbing the gums with ant, bee, lady bug, or fly, and carrying double nuts in the pocket. The spine of a dog fish, kissing a mule, burying a tooth in the hole of a mouse. Carrying as a talisman the tooth of a soldier killed in battle, or that of a murdered man, or pricking the gum with a sharp twig from a sweet apple tree.

Should all these fail and you desire to be rid of the offender, try this specific from a manuscript dated 1610, and published in the *Gentleman's Magazine*, 1835:

"TO MAKE AN ACHING TOOTH FALL OUT.

"Take wheate meal, and mix thoroughly with milk of the hearbe called spurge, and make thereof a paste of doughe, with which ye shall fill the hollowe of the tooth, and let it be there a certain time, and the tooth will fall out of itself. Also, if you wash your mouth with wine wherein the root of this hearb hath bene sodden, you will never have payne in your teethe."

To close this section of "Tothe-Lore" without a brief reference to St. Apollonia would be an act of discourtesy to her memory, as she was believed to have great sympathy for all who suffered the torments of toothache and other pains of the jaw.

Part of her martyrdom consisted in submitting to barbarous extraction of her teeth at the hands of her tormentors, and it is naturally supposable that fellow-feeling made her wondrously kind.

Her emblems are described variously to be "holding a tooth in pincers; her teeth pulled out; pincers in left hand, tooth in right; pincers alone; tied to a pillar and scourged." When Sampson Carasso bids Don Quixote's housekeeper to get him "something warm for breakfast and by the way repeat St. Apollonia's orison," the good housekeeper objects. "Dear me * * *

the orison of Saint Apollonia, say you. That might do something if my master's distemper lay in his teeth, but, alas! it lies in his brain."

This is from Charles Jarvis' translation, edition of 1842, and the following note is appended: "The orison of Saint Apollonia (Santa Apollonia) was one of the *ensalmos* or magic skills to cure sickness, very popular in Cervantes' time." A Spanish writer, Don Francisco Berquizas, has gathered the words of this orison from the mouths of some old women at Esquiras. It is in short verses like a *sequidilla*, and the following is a literal translation of it:

"Apollonia was at the gate of Heaven and the Virgin Mary passed that way. 'Say, Apollonia, what are you about?'"

"My lady, I neither sleep nor watch, I am dying with a pain in my teeth."

"By the star of Venus and the setting sun. By the Most Holy Sacrament, which I bore in my womb, may no pain in your tooth, neither front nor back (*muela ni diente*) afflict you from this time hence forward."

In the time of Henry VII it is said of the teeth of St. Apollonia, which cured toothache, that they would fill a tun. Rings with teeth supposed to be those of this Saint were often worn.

According to Lady Wilde's "Ancient Legends of Ireland," many miracles were also performed by the tooth of St. Patrick, which fell from his mouth when he was teaching the alphabet to the new converts, and a shrine was afterwards made for the tooth, that was held in the greatest honor by the kings, chiefs, and people of Ireland.

Query.—Did St. Patrick have Rigg's disease? It is stated in *Chambers' Book of Days* that "the jaw bone of Saint Patrick, enclosed in a curiously embossed silver case, has been for years in the possession of a family in humble circumstances near Belfast. This relic has long been used for a kind of extra judicial trial, similar to the Saxon *Corsnet*; a test of guilt or innocence of very great antiquity; accused or suspected persons freeing themselves from the suspicion of crime by placing their right hand upon the reliquary and declaring their innocence, in a certain form of words supposed to be an asseveration of the greatest solemnity, and liable to instantaneous supernatural and frightful punishment, if falsely spoken, even by *suppresio veri* or *suggestio falsi*."

"It was supposed to assist women in labor, relieve epileptic fits, counteract the diabolical machinations of witches and fairies, and abate the baleful influences of the evil eye. It is not, how-

ever, of late years put to such uses, though it is still considered a most welcome visitor to a household where an immediate addition to the family is expected. It was at one time said to contain five teeth, but now retains only one, three having been given to the members of the family emigrating to America, and the fourth was deposited under the altar of the Roman Catholic Chapel of Derriaghy, when rebuilt some years ago." *International.*

A COMPARISON WITH SUGGESTIONS.

C. W. Stainton, D.D.S., Buffalo, N. Y.

We are in the habit, in our specialty, of giving ourselves great credit for versatility. I think it was Dr. Norman W. Kingsley who made the assertion, some years since, that if all other artists were obliterated there was enough artistic ability among dentists to almost restore the "lost arts," and that for its opportunities and age our specialty was richer in nearly everything pertaining to cultivated mind and muscle than any other class of men.

We have enjoyed this flattering view of our own abilities, this praise of ourselves by ourselves (I do not recall ever having heard it much from outsiders), perhaps too much for our own good.

I am not sure we are more apt to overestimate ourselves than any other specialty; indeed, I am inclined to think that we are, all things considered, a really modest class of men. This phrase, "all things considered," is brief, but really comprehensive. While dentistry is in some sense an illustration of the common saying, "There is nothing new under the sun," yet it is so young really in its art, its literature, its educational methods, that many of us, who do not yet consider ourselves old men, have seen it change materially. Its educational methods, much of its literature and practical art, are not yet gray-haired.

While we have great cause to rejoice in what has been done, and look hopefully to the future, it is well to remember that the whole wilderness does not yet blossom as the rose.

In a recent discussion the position was taken that dentists were not only skilful in manipulation beyond other specialists, but as writers and speakers were fully up to the medical and legal professions. Is this true? Let us make a comparison. It will be comparatively easy to defend the position taken as to manual

training and skilful manipulation. Abundant illustration might be given along this line. Dentists who have developed along special lines in dentistry, as Coffin, Angle, and Kingsley, or have gone into general or special surgery, as Garretson and others, abundantly prove this. The man who for a generation was the leading surgeon in this locality, Julius F. Miner, commenced as a dentist.

The claim as to our versatility as writers and speakers is much easier to make than to establish. Any one who has served on a committee to provide papers for a dental meeting gets the impression that there are almost no writers. Answers to earnest requests plead "inability," "can't write," "don't know what to write about," "never did such a thing, and never can." That many of the papers we do get, as the result of persistent, forceful persuasion, are written by those unused to writing is very evident. The literary style, or lack of literary style, the self-consciousness proclaimed by the effort, evinces this. "Why your business committee demanded a paper from me on this subject is more than I can tell." "If any apology is needed for my reading a paper before you, I refer you to the business committee, as the fault is theirs, not mine." "Gentlemen, this is my first attempt to write a paper, and if I survive I promise never to plead guilty again." "Mr. President and gentlemen, in the few remarks I have to offer about polishing rubber plates I do not expect to offer anything original, but simply to start a discussion." All these prefixes and suffixes proclaim the neophyte, and are wholly unnecessary. The style proclaims the experience or non-experience of the writer. What is in or is not in the paper leads to the discussion.

Shall we ridicule these efforts of the beginner? By no means. Most of the men in middle life in dentistry have been over this very path, and perspired in the very same way. Certainly some of us recall vividly our own earlier efforts, our shield of "Business Committee," our attempt to say more or less—usually less—about something of which we knew very little, and our vain hope of provoking discussion which did not appear.

No writer is born fully mature. Some there are very versatile, ready to toss off a paper in an hour or two. Such a gift is rare, and not desirable. Why not desirable? Because it is almost certain to lead to verboseness, to very objectionable literary style. Such writers are lacking in carefulness of statement and fixedness of judgment, and are unreliable usually. It is better to write laboriously, to write, rewrite, condense, revise, expressing every idea clearly, concisely, without padding out with phrases not

necessary to clearness of expression. This should be the aim and study among us.

We have hosts of writers in dentistry not yet developed. George W. Curtis, one of the most graceful writers we have had, became so from most unpromising beginnings. Illustrations by the score might be given along this line if time permitted. The motto on the title page of the *Dental Cosmos*, "Observe, compare, reflect, record," carried out thoroughly, would change matters among us in this direction.

We get into a habit of doing things, hear of and see other ways of doing the same thing, but do not fully "observe, compare, reflect," and almost never "record." Consequently we learn new things slowly—perhaps only when we find ourselves in the rear of the procession, and our patients leaving us for other men who are in touch with new and improved methods. The seeker after truth needs ever to keep his mind open and receptive to new ideas and methods. To "observe, compare, and reflect" will help us to do this.

We all take one or more dental journals. Each month these visitors offer to us new things. Unless this new thing is very striking, or strikingly presented, we give it brief attention, and that is all. If we could only apply the first three terms of the motto meeting most of our eyes every month—this rule of three—to what we see and hear, it would quicken our apprehension, broaden our judgment, and improve our manipulation; and then we would be fitted to apply the fourth term of the motto, "record."

To teach men in middle life, and of fixed habits, new methods and habits is not easy. I appeal to every young man who hears me, especially every beginner in dental practice, to keep such record of his cases in practice, of his observation, and of his reading, as will aid his memory. It is not hard to do this. A scrap-book does not help us here. The publication of most of our journals in book form, and the desire to keep them for binding, prohibits their mutilation for this method. But we can write a few sentences on paper, giving the name of subject, author, where to find, and such points as strike our minds, and drop it into its alphabetical place in a letter file; or make such entry under the proper letter in an indexed note-book, and be able at any time in a moment to refer to it. Our notes would probably mean nothing to another, but it brings to the man making them the whole article afresh. Such note-book or letter-file will cost less than a dollar. The cost is nothing—the trouble is nothing. When the

habit is formed the results will be surprising. Any man here who will put this plan into operation can write a good paper for our next annual meeting, for he will have something definite on some subject, and not need to cudgel his empty head all in vain for a starting point.

So much of our training is of the hand, not of the mind, still less of the tongue, that we develop dexterity of the first and neglect the others. Most of the work of our daily practice is applied mechanics. The expression of that rare old man in dentistry, Dr. Wm. H. Morgan, in speaking of dental education in the American Dental Association, at Fortress Monroe, in 1894, that "manipulative ability was the keystone of the dental arch," is comprehensive.

It is undoubtedly true that many of our best operators are poor writers and poorer speakers, and that many of our best writers and speakers are sadly deficient as operators. There is no necessary relation between the two conditions. At most, it only show natural gifts and training in one condition, and lack of them in the other. But lack of them can always be atoned for by applied energy. History is full of such instances.

After our examination, before our graduation from Pennsylvania Dental College, Dr. Brophy and myself, with a little time on our hands, were shown by Mr. S. S. White through his establishment, corner Twelfth and Chestnut streets, Philadelphia. On returning to the salesroom we were introduced to a man whom I had seen at a dental meeting in this city, also at Niagara Falls, at a meeting of the American Dental Association. After this gentleman had gone out, Mr. White gave us briefly his history. He was one of the cheapest, most unlearned, untrained men in our calling. Mr. White finally prevailed on him to attend a dental meeting, with the result of opening a new life to him. He got new ideas and new methods of practice, trained himself to write and speak, so that for the last ten or twelve years of his life he was one of the most valuable men in local, State or national meetings.

The improved standard of dental education ought to improve the conditions we are discussing. Men entering dentistry now must, in most of the States, have the foundation of a fairly good mental training before they can begin their dental education. They are no longer the boys who, with almost no mental training, after some years at the plough, the anvil, or the bench, prompted by a goodly ambition, went into some private office, got what practical training one man could give, under circumstances not

most favorable, and then went out to make a record for themselves and for dentistry in general. And this record, in view of all the circumstances and environments, has been a most worthy one. These men, uneducated, untrained in any broad sense, unfavored, have raised us from obscurity and contempt to most gratifying recognition and respectability. All honor to the fathers in dentistry!

Those entering our ranks to-day, favored by liberal, well-appointed preliminary and professional education, with nothing hid from the sincere seeker after new ideas and methods, ought to make great advancement in our special field. Sparsity of thinkers and writers ought soon to be unknown among us.

The third claim, that dentists are as good speakers as members of the medical and legal profession, can hardly be substantiated. Practice makes perfect. Speaking is only incidental among us. This is true also in medicine, but medical men are often called upon to occupy positions at least semi-public in character, and their reading is usually more general than ours. They have a wider field, a longer lineage. In fact, a medical man is the crystallization of the ages. He ought to be a better speaker than the dentist—has a greater repertory and a greater inspiration. I believe medical men, of equal rank and position, are better speakers and writers than we are.

To claim that we are more at home in consecutive thinking on our feet than the lawyers savors of overweening pride and confidence. A lawyer's training is chiefly of the mind and tongue. Manual training is nothing with him, while with us it is the chief feature. A lawyer's education is that of reading legal enactments and records of cases and decisions, thus filling his mind with legal principles and rules of procedure. His practice is that of applying these principles to practice, and stating and applying them in behalf of his client in open court. Necessarily this makes him ready in speech, quick in retort, and versatile in the application of those rules and principles in support of his own side and in disparagement of his opponent. To expect that a man trained thus will be no more fluent in speech than a man whose time is spent chiefly, not in opening his own mouth, but in opening the mouths of others while he keeps his own shut, seems unreasonable.

Undoubtedly the most fluent impromptu speakers are to be found among the clergy. The best of them will evolve out of their inner consciousness offhand more interesting things to say on a subject given at the moment than any other class of men. And yet the most fluent of them never appear without prepara-

tion, if it is possible. Their remarks may seem unpremeditated, but are not. There is only one class of men always on tap, ready to speak without preparation at any time, viz., the tonguey fellows, those designated as having the "gift of gab." These are seldom worth listening to, and that leads me to my last suggestion.

We ought to cultivate the habit of getting our ideas on all the subjects given in our programs well in hand before we come together at these gatherings. Then we would listen to papers with minds alive and receptive of all that is of interest; and then we could get up and say something in the discussion, and not be simply human sponges, absorbing all we can and giving out nothing unless we are hard pressed.

CHEAP RUBBER PLATES.

The "cheap" rubber plates must be thicker than the better grade, which, added to the extra weight when bulk is equal, makes a plate far more difficult to keep in place if the plate is an upper one. For partial sets plain teeth standing alone cannot be made to stay on a cheap rubber plate, while if of the best grade they will be entirely practicable.

Cheap rubber is so much harder to press into shape for plates that the percentage of teeth broken in the process makes it far more costly than the more pliant high-grade rubber. This breakage of gum teeth accounts largely for the vast number of hideous exhibitions of so-called pink rubber used in front of plates with plain teeth. This pink rubber is far from pink or any real imitation of gum color when used awhile, and never fails to expose the fact that the wearer has "false teeth." The cheap rubbers, when partially vulcanized, which is often the case, carry a far larger amount of filth of every kind, even though some effort is made to cleanse them. High-grade rubber plates are flexible to a degree that is of real advantage, while the cheap grades will break if made thin enough to spring in use.

If I am correct in my claims, not another pound of anything less than the best quality of dental rubber should ever be sold to the dental profession, cheap rubbers being such an imposition upon the people as to justify legislation to prevent their use.

CHEAP VULCANITE.

Dr. W. E. Driscoll, Manatee, Fla.

I do not remember having seen one word of warning in the dental journals against the use of so-called cheap dental vulcanite for plates.

In many localities the poorer grades of rubber are used with few or no exceptions. I have discovered only two reasons to account for the fact. One is to save the difference in price, which is too ridiculous almost for belief, being about five cents a plate; the other "reason" is that the higher grades are so tough and difficult to finish up.

I said there was about five cents difference in the cost. Not always. I have tested some rubbers sold at a low price that were so heavy that the cost of a plate was more than if made of the higher, lighter grades.

PRODUCTION AND USE OF CARBORUNDUM.—The *Scientific American* says the Carborundum Company reports to us that its works have produced during the year 1896, in round numbers, 1,191,000 pounds, or 595 $\frac{1}{4}$ tons, of crystalline carborundum. Says the *Engineering Mining Journal*: Consideration at the present is given to the production in crystalline form only, but another important industry in which carbide of silicon promises usefulness of the material. Some mention has been made of the experiments showing that carborundum can be used, and will, in all probability, take the place of ferro-silicon in the manufacture of steel. Professor Luehrmann, of Germany, recently wrote an article on this subject, indicating that in the use of carborundum there will be in Germany alone, approximately, two thousand five hundred tons consumed annually, provided its cost would not exceed six cents a pound. It may be used for this purpose in an amorphous form, and the Carborundum Company is prepared to furnish it at a price slightly under this figure.

VOMITING OF SEASICKNESS:

R.—Menthol gr. iss.
 Cocaine hydrochlorate gr. iij.
 Alcohol oz. ij.
 Simple syrup oz. j.

S.—Oz. j every half hour.

Dr. A. Morel-Lavalle.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. Harry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.]

Question 21. *A lady, aged thirty-seven, has four protruding upper incisors. The arch is very narrow. The articulation is good, with the exception of the four anterior teeth, which do not articulate by a quarter of an inch. I cannot regulate without expanding the arch. The patient insists on having something done. What shall it be?*

Extract incisors and put in a bridge. *Dr. A. B. Laufer.*

Extract first bicuspid and move the six anterior teeth posteriorly after expanding the arch. *Dr. B. A. Kamerl.*

As the case appears to me, I think it practicable to extract the four anterior teeth and put in a bridge with anchorage at cuspid, on either side. *Dr. Brawley.*

Regulating teeth for a patient whose age is thirty-seven is not likely to prove successful. Your patient will probably be better pleased if you excise the natural crowns, and substitute artificial ones, arranged at the proper angle.

Dr. C. E. Wood.

Extract the incisors and replace with artificial substitutes, or, if the roots can be utilized for artificial crowns, correct the articulation by crowning each root. *Dr. Jackson.*

Extract first bicuspid and draw back the incisors. An excellent way to accomplish this is by an appliance of hard rubber or gold, fitting the cutting edges of the incisors, and connect to this an attachment of cloth, passing around the head, with strong elastic bands at the sides. It may only be necessary to wear this appliance at night to accomplish the desired result.

Dr. Davis.

Question 22. *How long should teeth be retained in place after being regulated?*

It depends on what kind of an irregularity has been corrected. Speaking in a general way, a retaining appliance should be worn till the teeth have grown firm again, which may be anywhere from two to twelve weeks, and in some cases the appliance is worn for a year.

Question 23. *I wish to experiment with antiseptics. Can you give me a list of antiseptics for internal and external use, which are not in general use in dentistry?*

The list of antiseptics for which you ask would be rather too long to enter here, but I would refer you to a pharmacopœia or a materia medica, where you can also learn the physiological effect of each drug.

Question 24. *Would you please be kind enough to advise me as to which of the numerous dental colleges you would advise a young man to enter, in order to become well grounded in all the branches of the dental art? Which is the best dental college?*

A question of this nature cannot be answered in this part of the BRIEF, but will communicate my views privately if you wish.

Question 25. *What do you consider the best cement for fillings?*

This is a difficult question to answer. A cement may be a success under the manipulation of one operator and a failure under that of another. Some of our best cements are quite difficult to mix properly. Temperature, moisture in the air, too little liquid or powder, or too little mixing will often ruin a filling; and the chemical properties of some cements are so nicely blended that the mixing must be accurately done, in order to accomplish the best results.

There is nothing which will take the place of downright confidence in your own ability. Years and years before German unity was an accomplished fact, or even likely, Bismarck said: "It will come; and it will come through me." The Iron Chancellor's confidence in his own ability, and his unflinching determination to carry out to the letter whatever he undertook, made the German nation possible. His imperious will and gigantic confidence in his own ability won half the battle before he began. No man with a wavering policy, or with self-distrust, could ever have accomplished this marvel.

Suppose Grant had said to himself, "It is not reasonable to think that a tanner boy can perform what Sherman, Meade, or Halleck have failed to do!"

What if McKinley had pictured himself as a failure, or as possessing only mediocre ability when a boy!

What if Wanamaker had pronounced himself a failure when working in a store at a dollar and a quarter a week, and walking four miles every day to Philadelphia! Would he have succeeded as a merchant?

PATENTS RECENTLY GRANTED RELATING TO DENTISTRY.

615808, Adjustable dental rubber-dam clamp, Arthur S. Cooper, McMinnville, Oregon.

615858, Disinfecting apparatus, Paul Kirschen, assignor to K. A. Lingner, Dresden, Germany.

616302, Post and disk attachment for artificial tooth crowns, George Evans, New York, N. Y.

616666, Artificial tooth, Theodore S. Haineken, Burlington, New Jersey.

616815, Attaching tooth crowns, Max Tresenreiter, Munich, Germany.

29876, Design, cap for teeth, Allen W. Smith and H. McDowell, New York, N. Y.

617245, Syringe and atomizer, Edward A. Franklin, Austin, Texas, assignor to Chicago Novelty Manufacturing Company, Jersey City, N. J.

617247, Guard for dental forceps joints, John A. Gholson, Clarksville, Tenn.

617626, Hand mirror, Charles E. Allen, assignor to R. Wallace & Sons Manufacturing Company, Wallingford, Conn.

617359, Alloy for dental purposes, Carl A. R. Samsioe, Stockholm, Sweden.

29996, Design, dental cabinet, Wm. G. Hullhorst, assignor to Ransom & Randolph Co., Toledo, Ohio.

The Vermont State Dental Society will hold its twenty-third annual meeting at Burlington, Vermont, on March 15th to 17th. Headquarters at the Van Ness House. A cordial invitation is extended to all members of the profession.

Thomas Mound, Sec'y.

PITH IS LOST IN VERBOSITY.—“I am surprised that we lost our case,” said a lawyer to his client. “I said all I could for you.” “That was the trouble,” replied the convicted man. “You said too much. Your long argument will hang me.”

“Wasn’t that a finished sermon?” asked a lady of a friend, as the two were going out of church. “Yes,” was the reply, “but I thought at one time it never would be, and I forgot the first of it before the middle was reached.”

CURRENT THOUGHTS.

HOW TO CONDUCT OUR DENTAL MEETINGS.

Dr. W. G. Browne.

I have been impressed for years with the fact that we do not get out of our association meetings all that we might with proper executive ability. We lose a great deal of time, and throw away valuable opportunities. We do not make every one contribute, but make a few do it all. There is a great deal of vague talk that amounts to nothing practical. More can be taught by demonstration than by talk. Lectures and models are better than mere description. It is not always possible by mere words to so explain a device that others can understand it. We must change our methods of association work. Through all these years we have been going on exactly as we began forty or fifty years ago. We are creatures of habit and travel in ruts; it is hard work to pull over into new ground.

Look at the size of this room, and during this meeting it has never been filled, and then think of the four hundred dentists in Alabama who are not here to-day. Why? Because they do not feel they would get the worth of their money. Freeman and Foster and such men come, not because they expect to receive any benefit, but that they may benefit the other fellows—help them along. But how many are there of that character? You can count them on your fingers.

The rest of us sit here and drink it all in like sponges. Is it because the rest don't know anything? Or because they can't tell what they know? Surely this half dozen men don't know more than the other four hundred all put together. We come here hoping we may become better dentists, better men, by coming, but let each man here present make up his mind that at the next meeting he will contribute something to the general stock—concentrate his mind upon that determination during the coming years—and the result would be astonishing. It would make this association the wonder of America. Go home, and fix at once upon some subject, some line of thought; cultivate and elaborate it by study and observation.

The clinics of to-day are the greatest farce in association work. I went over yesterday and thought I would see what was being done, but by the utmost stretching of my neck I could only determine that of all the crowd about four men could really

watch the operation, and they stuck right there and took it all in, while the rest learned nothing. I am not blaming anybody, but these are the plain facts. I remember one occasion in this association, when the clinics were properly conducted. There was one operating chair, and that was placed on a platform; the association was called to order; the clinician and operator took their places, everything having been properly arranged. Dr. Foster was the patient, and I was the operator, so I know all about it. As the operation proceeded the steps were described, and at intervals opportunity given to come up in an orderly manner and see it, and then take seats again. As the operation progressed it was discussed; the reporter heard everything that was said, and took it down, so that any one who wanted to could read about it, and in that way every member got the benefit of whatever good there was in it. That is a good plan and one that can be carried out.

Another trouble is that not one man in ten has what is termed executive ability. They have never been accustomed to assembly work; they know nothing about parliamentary law; have never presided even over a lodge meeting. But you have a man who is a good society member; he attends the meetings regularly; he pays his dues; he contributes papers, and takes part in the discussions. You want to show that man that you appreciate him, and you elect him to the presidential chair. He deserves the honor; you feel that he is justly entitled to it. But what is the result? He has no executive ability. He does not know how to get the work out of the association. What is the remedy? I know of none unless it is to select a man who is known to possess that faculty in preëminent degree, and let him set by the president's chair and keep things going. It would not detract from the honor of occupying the chair. You will have shown your appreciation of his abilities in other directions.

Atlanta Journal.

HOW TO SET CROWNS AND BRIDGES SO THAT THEY MAY BE READILY REMOVED.—The post (which should be unnotched and tapered) and the underside of the cap is coated with a film of thin sandarac varnish; this is allowed to thoroughly harden, and the crown is then set with cement as usual.

This thin film of varnish while in no wise lessening the security of attachment, upon heating, softens and breaks the adhesion of the post and with the cement, allowing the crown or bridge to be readily removed.

J. E. Nyman, Review.

CLINIC ON REPLANTATION IN THE STOMATOLOGICAL CLUB OF CALIFORNIA.

Dr. Younger: In the case presented this afternoon there were two teeth elongated, this condition having been present for two years, and due to lack of occlusion. The alveolar process had also been carried down with the teeth, which, besides being elongated, bit inside the inferior arch. These two teeth were extracted and prepared for replantation. The sockets were deepened and so shaped that the teeth when reinserted would assume an artistic position not only as regards relation to other teeth, but also in supporting the angle of the mouth. The anesthetic used was a 33 $\frac{1}{3}$ -per-cent. solution of cocaine in Dr. Younger's menstruum.

Dr. C. B. Root: In this class of operations success depends largely upon perfection of detail, and the many points of interest which Dr. Younger's ripe experience enabled him to present to-day were of the greatest value. Inflammation operations present difficulties and dangers varying with the location. For instance, it is possible to injure the anterior palatine artery, veins and nerves when operating for the insertion of superior central incisors, or in a lateral incisor it is difficult to obtain a sufficiently strong plate of bone to cover the root labially. In lower bicuspid and molars there is always danger of injuring the inferior dental artery. The precautions taken to-day were of such a nature as to reduce the risk of opening into the antrum (the teeth being the right upper first and second bicuspid) to a minimum. In all operations of this nature the question of securing a proper anesthetic state is very interesting. Some patients have an idiosyncrasy contra indicating the use of cocaine. Eucaine could hardly be used on account of the swelling and local after-effects. By inhaling the vapor of chloroform from a wide-mouthed bottle, not until a stage of unconsciousness is reached, but only until the patient gives some slight sign of the effects of the chloroform, such as the drooping of an eyelid, a condition of anesthesia is produced permitting the almost painless excavation of sensitive dentine. I have used this with success in addition to cocaine in implanting teeth.

Dr. Younger: I have paid much attention to the causes of absorption of implanted teeth, and have tried to find some means to prevent it. We know that the circulation receives its primary impulse from the heart, and is assisted by the contraction of the muscular coats of the arteries and capillaries. Every muscular

movement causes pressure on the veins and forces the blood onward into the heart, the valves of the veins preventing any regurgitation. All this is true of soft tissues, but not so in bone. All circulatory movement depends on the impulse from the heart. In cases of bone lesions, implantations, etc., there is a congestion, a stasis, which presents conditions favoring decomposition of the blood. Among other products of such decomposition an acid is formed which attacks the root of the implanted tooth. The multitude of minute cavities show this to be a process of erosion, and differs from the absorption of the temporary teeth; here the blood is fresh and clean, and the absorption is physiological. Massage and intermittent pressure over an implanted tooth would have a tendency to relieve the stasis, as this would take the place of the muscular action which propels the blood in the soft tissues.

Dr. Russell H. Cool: The Stomatological Club should feel very proud in knowing that its first president originated these implantation operations. Dr. Younger has devoted much time to research in this field, and this fact explains why each little point which goes to make success is so well noted. This is truly the work for a specialist, and a practice of ordinary routine will not allow time to develop all the minutiae. The operations were artistic dental surgery, and will not only improve appearances, but will give something satisfactory for mastication. The tooth to be implanted must have the pericemental membrane present in order to obtain attachment. Dr. Younger advanced the theory of the persistent vitality of the pericemental membrane, and men who were most opposed to it now advocate the theory, and say their failures have occurred where they were afraid of the condition of this membrane. The anesthetic used was a 33 $\frac{1}{3}$ -per-cent. solution of cocaine, and only a portion of a minim was used. By moving the nut on the piston of the syringe, as small an amount as one-third of a minim may be injected. An implanted tooth should be placed gently in its alveolus. It should fit closely, but much force should not be used.

Pacific Gazette.

CREOSOTE AND SUNLIGHT.—If you hope to retain the full strength and medicinal properties of creosote, it must be kept in a bottle of white glass, sealed with a glass stopper, and placed where it may receive the light of the sun. If placed in a dark bottle and hidden from daylight, it deteriorates and loses its desired qualities.

Trans. by Dr. B. J. Cigrand from Zahnärztliches Woch.

A SIMPLE SALIVA EJECTOR.

Dr. J. H. Sanders.

In its simplest form it can be easily made in about one hour by any one who can soft-solder, and I think the following particulars will make its construction clear:

The ejector is best made from brass tubing, and for this purpose fishing-rod ferrules are admirably suited. These may be obtained in all sizes and at a small cost from any fishing-tackle maker.

The body tube is about three and one-half inches long and three-quarters of an inch in diameter, on the back of which is soldered a plate of brass for the purpose of screwing the ejector to the wall. A short length of tube is also soldered at a convenient point for attaching the suction tube.

The corks used for closing the ends of the main tube must be specially selected for their soundness, and may with advantage be dipped in melted wax before using. Two lengths of smaller brass tubing, about one-quarter or five-sixteenth inch, are taken to form the tubes. The upper tube terminates in the point, which has a fine aperture to allow a jet of water to pass. Possessors of a turning lathe will, of course, turn this up, but if one is not available, proceed as follows: A series of cuts are made with a fine saw at the end of the tube, and triangular pieces removed; the remaining pieces are then bent together until they form a point. Soft solder is then run into the cuts, and the small hole drilled with a fine drill in the engine.

This hole must be quite smooth, and about one-thirtieth of an inch in diameter, and must be so drilled that the jet is thrown in the direction of the axis of the tube. If the ejector is to be attached to the water supply by rubber tubing, it will be well to solder a ring of wire at the top of the tube to prevent its being blown off by the water pressure. This finishes the upper tube.

The lower tube has a short length of small brass tube soldered into its upper end to form the throat; it should be about four times the diameter of the jet aperture, and about three-quarters of an inch long. It must be soldered centrally into the larger tube, which may be adapted to receive it in the same manner as the jet was formed.

Two or more holes of about one-sixteenth of an inch diameter are drilled in the throat at one-eighth inch below its upper edge, to permit the air and water to be drawn from the body of the ejector. Before putting the parts together there remains the

bucket to be made. For this take a short piece of tube about three-quarters of an inch in diameter and one inch long, and close one end by soldering in a disk of brass. Two narrow strips of brass are then soldered to the other end, and these, having been bent to the proper curve, are again soldered to a short piece of split tube which will just slide over the end of the tube.

The parts may now be put together. First, the holes must be bored in the corks to take the tubes, for which purpose a cork-borer should be used if one is at hand. If not, however, the holes may be made by taking a piece of the same as tubes are made from, and, having sharpened one end with a smooth file, slowly pushing it through the cork with a twisting motion. The corks are now tightly inserted into the main tube, and the tubes pushed through until the jet fits into the throat; this insures the jet being central with the throat, and gives steadiness to the tubes. The bucket is pushed on the end gear of larger tube until the tube nearly touches its bottom, and the ejector is ready for use. It will work best on a high-pressure water supply, but will also do its work well if supplied from a cistern, provided a fall of four or five feet can be obtained.

The following conditions are necessary for successful working:

First. All joints must be tight.

Second. The jet of water must pass through the throat without touching its walls.

Third. The end of the tube (lower tube) must be under water when working.

Ohio Journal.

PROFESSIONAL RECRUITS.

Editorial in Western Journal.

What Dr. Taft writes we always read with interest. His experience and standing in the profession entitle his opinions to much consideration. But we cannot but be a little amused at his schemes for providing homes for the sixteen hundred annual recruits to dental ranks, with an increasing ratio. It will be seen below that the dear doctor is laying hold of the recently acquired territory for homes for some of them, and he goes to foreign fields with others, while he decimates the veterans at the rate of 480 per annum.

There is no doubting the fact that the multiplying of colleges is rapidly multiplying the ranks of the profession. With the good

doctor's figures, we will have to acquire more territory before many years to find homes for our recruits.

There is a sad fact in his editorial. It is that many of these recruits are going out unfitted for professional life.

The very face of the dear doctor's article shows that he feels that the profession is being overcrowded, and that, too, with many who, as Sam Jones would say, are not "fitten to be fit." There are only two classes that will agree that the output is not too great.

Here is Dr. Taft's editorial:

"By referring to the commencement exercises of forty of the principal dental colleges of the country for the present year, it appears that there have been 1,620 graduates. This will make quite an addition to the ranks of the profession; whether more than enough to supply the demand is a question about which there is much diversity of opinion.

"There are very few who now enter upon the practice of dentistry by any other door than through our colleges, so that it is not difficult to estimate the number of annual increase.

"There are now not over 24,000 reputable dentists in practice in this country. As to whether the new recruits are more than sufficient to supply the demand, three or four things may be taken into account.

"First, the death-rate per thousand. Estimating this at 20 per thousand per annum gives 480. It is probably not wide of the mark to estimate that a number equal to this will withdraw from the practice of the profession per annum; this for various reasons. Some on account of age, others for the temptation of some more lucrative business, others from manifest unfitness, and still others from a dislike to the profession. Now, these influences are constantly operative in the withdrawal of practitioners from the profession.

"Another point to be taken into account is that the country's population is constantly increasing, and on that account increasing the demand for the services of the dentist; and still further, if our country is to receive new additions to its territory, as seems probable now, that will occasion still an increased demand. The probability is, from present indications, that in the near future the population of the country will be increased by many millions, by the acquisition of new territory and new people. It is true, doubtless, that such increase of population will not make a corresponding additional demand for dental service; yet doubtless there will be somewhat of increased demand in the immediate future, and it will increase rapidly as time goes on.

"Another point to be considered is that the people of our country, and in all civilized countries, are becoming more and more intelligent in regard to the value of good dental service. The demand for such service is greater now than ever before, and is constantly growing.

"Another fact which should not be overlooked is that there is constantly demand for dental practitioners in other countries than our own, and this is every year drawing quite a number of our best practitioners from the ranks of the profession. When all these things are taken into account, it does not seem probable that in the near future the ranks of the dental profession will be overcrowded.

"The people are now demanding better service than ever before, and a great many inefficient are dropping out, or being dropped out, because they cannot answer the demand for a better quality of service.

"Calls are frequently coming for dentists better equipped than those who have occupied places up to the present time, and there are many places that have no dentists within a convenient distance, and some where persons are compelled to go many miles for such service.

"Now, having made these statements, it is proper to suggest that a considerable number of the 1,600 newly introduced dentists who are now beginning their career are poorly equipped and will hardly be able to make a professional success, and this for two or three reasons. Some persist in taking an educational course in dentistry who have no natural fitness or adaptation for it. Another class have not the perseverance, energy or industry to accomplish their educational work in an efficient manner. It is here suggested that these facts ought to be a stimulus to all our schools to exercise the utmost discrimination as to the persons they admit to their schools, selecting and encouraging those who are well endowed, rejecting those in whom such endowments are absent, and exercising great caution in regard to those who are in an uncertain condition. Such care and discrimination would result in great benefit to the profession and immensely to the welfare of those who require the service of the dentist."

About 6,000 stars are visible to the naked eye. A powerful telescope reveals 5,000,000 of them.

THE PERFECTED PORCELAIN ENAMEL.

Dr. N. S. Jenkins, Dresden.

When this society met in Dresden, two years ago, I fondly imagined that I had nearly reached the end of my experiments, and had, therefore, the temerity to announce a new material for inlays and pivot teeth. But the end was not yet. After nine months' further experimenting, I was able to decide upon the constituents of the body only on May 15th, 1897. From that date until March 24th, 1898, I was occupied with studies of color; but then the work could be pronounced finished. As the preliminary announcement was made before this society, I caused a circular to be sent to its members, so soon as my experiments were finished, that they might be the first to be informed of a discovery which, I hope and believe, will mark an era in the practice of dentistry.

Many of us have dreamed of a plastic material, easily introduced and firmly adhering to the walls of a cavity, which should be indestructible, semi-transparent, and of any desired color; but although a great amount of time and labor has been expended in experimenting in this direction, the results are by no means encouraging. The best results have been obtained with phosphates, but zinc phosphate, though wrought by the hand of genius, remains zinc phosphate still. Even were it possible to produce such a filling material, it is by no means certain that it would prove to be a blessing. The wonderful results which the accomplished modern dentist achieves, as a matter of course, in his every-day practice, have been made possible to him only because dentistry, as now taught, is so difficult a branch of the great science of healing. He has to do with the most common and one of the most distressing forms of human suffering. To its relief he must bring not only a well-trained mind and broad scientific attainments, experience, conscientiousness and good judgment, but also a self-control which never falters, and manual dexterity supremely great. He owes his marvelous manipulative skill to the fact that many of the operations he is constantly making are among the most delicate and difficult known in the whole range of surgery. If the process of filling were suddenly made so simple as would be the case through the discovery of such a plastic material as is outlined above, it is quite possible that this high order of skill would, for a time, deteriorate, to general disadvantage.

I feel, therefore, that the system which I have the honor to present to you is all the better for not being a too easy one. For

its practice, skill, patience, good judgment and taste are indispensable, but there is no good dentist who cannot, through taking each step with exactness, arrive at a perfect result with mathematical certainty. Permit me to mention some of the points of greatest importance in making inlays. The impression must be perfect. To this end it is necessary to prepare the cavity without undercuts and of such a form, and with such approaches, as to permit the impression to be removed without its shape being changed. It is folly to try to work with a faulty impression. No amount of skill and trouble will suffice afterward to adapt the filling to the cavity. A slight tear in the gold foil, if not at the edge, does not make a faulty impression, but any roughness of the edge or any twisting or bending make the impression useless. It is very desirable to get the edges of the cavity well defined and well polished. I have found soft iron burs of various sizes, well charged with diamond dust, most useful for this purpose. They cut rapidly and smoothly, when kept wet with water of the right temperature, and require only a light touch to do the work. Nervous patients can easily bear a diamond bur in places where the use of an ordinary bur would be impossible. If the cavity has the right shape and edges, the gold foil, often by the pressure of pieces of spunk alone, and always by the aid of the burnisher, can be so perfectly adapted to the cavity that the finished filling shows no line which can be detected by the unaided vision, if the color of the inlay is correct.

Next in order of importance comes the melting of the filling. The impression must be placed upon a pasty bed of asbestos and water, in such a manner that all parts of the gold are equally supported. It is seldom necessary to dry the asbestos before packing the filling, as it can usually be dried to the best advantage at the time of first melting. It takes some experience to hold a perfectly steady flame on the handle of the melting-pan until all the moisture is gently evaporated, and then to slowly turn the heat upon the pan, and by steadiness and with patience slowly increase it until the mass is melted; but it is just here that impatient men sometimes spoil their work by filling it with bubbles. It does not matter if the mass does not flow smoothly at the first melting, or that its shape is irregular, but it must not be boiled by sudden increase of heat, for then it will be porous, and no subsequent heating which the gold foil can bear will cure that defect. The same care must be exercised at the subsequent meltings, and it is desirable, and by taking sufficient pains always practicable, to get just the right size and contour, so as to avoid any subsequent grinding of the surface.

The correct setting of the inlay is also most important. It does not seem to matter much what phosphate cement one uses. The inlay must have such perfect edges that the cement cannot be dissolved out, but it must be mixed to that consistence, varying according to the case, which permits all of the surplus to be squeezed out until the joint is perfect, and which yet leaves it strong enough to hold the inlay firmly in place. The operator must be familiar with the material he is using, and know how to manipulate it to best advantage. In a day when he is setting several inlays, he may perhaps not use cement of just the same consistence twice. It is not difficult to learn how to use any given cement for this purpose, but it must be learned, or the result will be unsatisfactory.

Language fails many patients to express their gratitude for the benefits accompanying this method of treatment. Nervous and invalid patients who have writhed in helpless agony under the mallet during the packing of gold, come for these inlays without dread or fear of consequences. Teeth abnormally sensitive to thermal changes, which, under gold, are occasions of permanent discomfort, become so comfortable under this treatment that the patient forgets they were ever diseased, and is not afraid to brush them even with cold water until they are clean. We have all seen decay recommence about beautiful gold fillings because the teeth were so sensitive that the patients would not keep them always clean.

Not least of all is this system to be commended for its esthetic possibilities. For inlays, for pivot teeth, and for crowns, it may be so used as to transform the appearance of the mouth by restoring form and color so completely that no evidence of art is perceptible except by careful examination.

Discussion.

Dr. William Sachs, Breslau: I have always taken the greatest interest in glass fillings. If you will recollect, I spoke upon glass fillings about eight or nine years ago at Heidelberg. I experimented a great deal, as I felt the need of a material which would satisfy the patient and satisfy the dentist. I was perhaps the first to take an impression with gold foil. After a great many experiments, I found it was the only correct way of getting a good impression of a cavity. I have done some very beautiful glass fillings, but the great majority were failures. After six months or a year, they began to get rough on the upper surface, and the edges broke away, and I gave it up. I was very much interested in

hearing that Dr. Jenkins was experimenting with porcelain enamel. I went to Dresden and saw a great number of glass fillings, and in the same mouth some porcelain enamel fillings, done a year or a year and a half, and was so much enlightened that I tried to get such an outfit. For three months I have been working with it, and my experience is that no dentist who pretends to be a modern dentist, and wishes to be at the height of his science and of artistic work, should be without the means for making these porcelain enamel fillings. I do not go quite as far as Dr. Jenkins, perhaps, but he is much more skilful than I am. I would not do it in so many places and cases, but he is able to do it in almost every cavity in the mouth. I saw it done in the second and third molars, and in places where you would think it was impossible to get at the cavity, but Dr. Jenkins did. Now I, for my own part, do not go quite so far. I select a case where I find it necessary for esthetic reasons, and use porcelain enamel for the front teeth and the labial surfaces, and in the large approximal cavities, which would show very badly if you used gold or other metal. I use it in about five or six per cent. of the fillings I am doing, and that may not seem a large number to you, but all the same I would not like to be without it, and my patients are so highly satisfied with it that they—and this is perhaps a question of some importance—will pay you almost anything you ask. It requires, perhaps, a little practice to get a good impression, but the whole thing is simple to the dentist who possesses the necessary skill to do good dental work. For my own part, I am very skeptical in accepting any new invention, and this is perhaps the first I have accepted for ten years; but I would recommend you all to try it, and you will think as highly of it as I do.

Dr. W. R. Patton: I would like to ask Dr. Jenkins what extreme length of time he has tested the results of this since he has made the discovery of a better material than what has been used up to the present. My experience of everything that has been tried in that line so far—and particularly those of Herbst, which were advertised a great deal and brought upon the market—is that in almost every case, with a few exceptions, they become so friable, and lose their color, that they were anything but esthetic. It would be interesting to hear from Dr. Jenkins what length of time he has tested this method.

Dr. George Cunningham: I should indorse what Dr. Jenkins has said as to the tremendous amount of labor and years of experiment that the product which he has brought forward absolutely requires. With regard to the work which was done, and

what Dr. Sachs has said about glass fillings, I think we may take it for granted that there is an immense amount of difference between what we will call for the time being a glass filling, and a porcelain filling. I don't know the composition of the material which Dr. Jenkins uses, but we may take it to be more in the direction of a body such as is used in continuous-gum work of a high fusing order, rather than that of a lower fusing glass material. The work done by Herbst and others was extremely useful, because that was the guiding point which led up to something which I think we have heard of to-day—something a little less than the old Herbst body, and something more approaching porcelain work than glass work. At the same time, even in continuous-gum work, when you come to define what porcelain is, it is really a question of how much glass there is in porcelain. At present, I don't know of any continuous-gum body which does not contain a certain proportion of glass, and if the glass is of a certain character, and more especially if made of lead, then of course in a certain time you get discoloration and blackening. That is the greatest fault I find. I don't find the glass fillings to become friable, but that is a question of manipulation, and I should say that this friability and breaking away of the edges are to be traced to that cause. But the coloring point is provoking, and different. It is very provoking, after you have made an apparently successful result and the patient is satisfied, to find after a certain time that the filling is discolored. I believe, from what I can see of Dr. Jenkins' material, that you are not likely to get any such result. I believe that the color will remain, and the only thing I would say is that it will take a number of years' experience before you can absolutely say that it will not change, and in many cases the changes are slow. In experiments which I conducted in the same direction some years ago, the result was obtained by using a certain amount of glass and coloring material as an admixture, and in that way I have been able to obtain low fusing porcelain inlays which have lasted a considerable number of years, and I can show results which have stood for eight or nine years, and which have remained perfectly sound in color. From what I have seen of Dr. Jenkins' material in the furnace, under heat, I should say that for esthetic results I have never seen anything better, and I am hopeful that the future will show its reliability.

Dr. L. A. O'Brian: If the two gentlemen who have just spoken had been present at the meeting two years ago, the question which they have just proposed was answered at that meet-

ing, and was discussed at length. The material, as it is now, is quite a different thing, and was even two years ago, from what Herbst introduced. It is not merely a glass material; it is decidedly a porcelain material, although one must agree with what Dr. Cunningham says, that it is difficult to draw the line as to how much glass there is in any porcelain. As regards the changing of color, I think Dr. Jenkins will agree with me, my experience having gone along with his, that two years ago we had been making for ourselves fillings which had been perfectly satisfactory to us with the then improved material, which at that time was two years old, and which at the present time is four years old, and looks as beautiful to-day as it did four years ago. I think Dr. Jenkins will agree with me that that is a fair minimum time that we have had these fillings.

Dr. Cunningham: There is one question which I should like to ask. We will take color 18—he has a certain amount of that material in hand—color 18 or 7. Can he reproduce colors 7 and 18 with absolute certainty, giving the same color as the specimen?

Dr. Jenkins: In reply to these questions, I beg to say that the composition of the material is a complicated and difficult one. It has not been put together haphazard, but is the result of continuous experiment in various materials which have finally been brought together in such proportions as to produce the present result. Any one who has worked at all with materials of this kind or has, above all, tried to bring the materials which are used in the production and making of artificial teeth into such a condition that they can be melted at a low temperature, is aware with what difficulty one goes step by step. For my model I took an Ash tooth, and I tried to approximate as far as possible to the character and composition of that material. In the production of the body, or in the production of a single color, a great many steps are necessary. It is not done by waving a wand or mixing drops of different liquids in a glass, but many things have to be treated separately, and finally many things have to be combined, and in these multiplied processes it often happens that something goes wrong—something with the temperature, something with the mixture, some carelessness of percentage in the grinding-room, or some error of a chemical nature. So there are naturally many failures to obtain exactly what one is aiming at, but that it can certainly be done has been demonstrated over and over again. We can always obtain the same color over and over again, but there is a mass of difficulties that only a person who has occupied himself with such matters can at all understand. With regard to

the permanency of the color, that is a thing, I believe, scientifically certain. I think the colors are now so arranged, I believe they are now so thoroughly incorporated in the indestructible body, that there can be no change in the appearance of the filling after it has been placed in the mouth; not in a lifetime. I believe that to be the case scientifically; I believe it to be the case practically. The experiments that Dr. O'Brian and I have been carrying on in the mouth have been going on simultaneously with experiments in the laboratory, and we have had, of course, a whole row of ridiculous failures. We have sometimes made fillings of materials which I had fondly hoped was going to be an ideal thing, but which, even after a few weeks or a month, began to show signs of disintegration and discoloration. Dr. Cunningham has mentioned the pernicious influence of lead. The faintest trace of lead is absolutely fatal. There is no way of eliminating the discoloration which will come if there is the slightest percentage of lead in the materials used. But whatever we have approximated to the material which since a year and a half we have used, there we have always got most satisfactory results, and many of those fillings which have been in now for four years are still perfect in color. There are a good many which are defective to a greater or less degree, but whenever we find one of those fillings, if the patient will consent, we take it out and replace it by the modern ones. But the filling material as it now exists I am absolutely confident cannot change in any conditions which can take place in the mouth, either in consistence or in color. They don't chip, as some of the hard porcelain fillings do, and they retain their polish under the use of both brush and powder. They protect the teeth from thermal changes to such a degree that if one has used them once one has no fear to continue using them. I have had repeated instances where the pulp has been badly exposed, and where, by putting in one of these porcelain fillings, the patient is unconscious within a few months that anything has ever happened to his tooth, and has not had the faintest knowledge of disturbance following. There are a great many instances of that sort that we have had within the last six months, where we have had exposed pulps in badly broken-down teeth of poor structure, but where capping and the insertion of such a filling has restored the tooth not only to a perfect esthetic appearance, so that it is really impossible to see that the tooth is filled, but where the patient is absolutely devoid of any annoyance from the capping of the pulp and the presence of the filling.

Dr. O'Brian: There is one modification I would like to make

to Dr. Jenkins' remarks. It will perhaps sound a little egotistical if I say that Dr. Jenkins and myself, to my certain knowledge, can melt these fillings and produce exactly the same color every time as samples. There is one circumstance, however, under which the color can be changed, and that is in melting the inlay. It should be done carefully and slowly, and if done the way we do it—and either of us would be glad to show it at any time—the color will remain perfect. If, however, it is overfired, like any piece of porcelain that ever existed in the world, you can burn the color out of it.

Dr. Jenkins: Some of my recent experiments with pigments have brought me into possession of colors which under no circumstances will burn out, but they actually become intensified with greater heat. I am now carrying on a most interesting and important series of experiments in that direction, and I should not be at all surprised if eventually I were able to make all the colors so that the change which we call "burning-out" will not occur in any degree of heat. I hope so, and I have every reason to believe that that will be the case. But at present there are some delicate colors that will not stand too great a heat without changing.

Dr. Wetzel: I am pleased that these experiments have been crowned with so much success, but I would like to ask a few questions about the finishing of these porcelain inlays. Of course it is a very great difficulty in fixing in a porcelain inlay to see that it does not extend beyond the margins of the cavity, as it is a material which cannot be polished like gold and metal fillings, especially in approximal cavities at the cervical edge. We all know that the success of preserving the teeth depends as much upon the insertion of the filling as upon the preparation of the cavity, and, as we generally do not have sufficient room in approximal cavities to put in these porcelain inlays, I wondered how Dr. Jenkins gets at it to finish off the cervical edge of such fillings. I put in porcelain inlays eight years ago, and they could be ground off with stones and disks, but I don't know how it is with these fillings of Dr. Jenkins', whether they can be polished off with emery paper.

Dr. Jenkins: The art is, as I have said in my paper, to get first a perfect impression. It is then a mere matter of experience to melt the porcelain enamel until it goes exactly where you want it. It flows so slowly that you can get the desired contour; it flows with such certainty that you can approximate to any line, however fine. If by any mischance there is an edge to the filling,

and it is necessary to take away some of the polished surface which is left after melting, it can be perfectly well done. It can be ground and polished like an Ash tooth, if the melting has been properly done. That is a matter of very great importance, but we who are most used to and familiar with its working prefer to so perfectly graduate the amount of the material that, after the final melting—three of which are usually necessary for any inlay—there is absolutely nothing to be removed; and should there be anything to be removed, it may be polished off with a diamond disk, or with sandpaper, or what one pleases. *Cosmos.*

THE DISPLAY OF GOLD IN TEETH.

Dr. E. T. Darby, Philadelphia.

I am frequently shocked, when I see the mouths of some people, to find glaring gold crowns on the bicuspid and anterior teeth. Only last week I met a lady in a trolley car in Philadelphia whom I had known years ago, but who for some years past has been living in one of the Southern States. As soon as I had entered into conversation with her I observed that she had three gold crowns on her upper bicuspid, and a great display of gold in the incisors and bicuspid. A pretty face almost ruined by this shocking display of gold.

I have sometimes thought that this craze for crowning teeth with gold was more prevalent in the Western and Southern States than in the Middle and Eastern States, but it may be that my attention has been more frequently called to cases coming from those sections of the country. I should be sorry to think that the esthetic sense or love of the beautiful was a matter of locality. But of one thing I am sure—the great majority of the people who compose my clientele would not tolerate the display of gold which is so frequently seen by all of us. I cannot condemn in terms too strong the practice which of late has become so prevalent, of mutilating teeth that gold crowns and bridges may be fastened upon them. It has seemed to me at times that in certain localities the dentists had gone mad in their desire to crown teeth and bridge spaces. I have seen in some instances a sound cuspid and second bicuspid mutilated that a gold crown might be put upon each to hang a tooth between. Worse than that, I have seen a lateral incisor covered with a gold crown, and a first bicuspid mutilated and then covered with a gold crown that a cuspid might be hung between. These are extreme cases, yet they illustrate the

tendency on the part of some practitioners to bridge and crown everything that comes along. I would not seem to condemn gold crowns in every instance, nor for extreme cases. I would be just. I have in two or three instances covered as many as eight of the anterior teeth and bicuspid in a given mouth. But these were for men well advanced in life, where the teeth had been worn down at least one-half of their entire length, and where the occlusion of the opposing teeth was such that it seemed the only feasible thing to do. A long upper lip or a heavy moustache have in each of these cases done much to hide from view the objectionable display of gold. To have done the same thing in the mouth of a lady would have been exceedingly inartistic, if not absolutely reprehensible. Circumstances do alter cases, and what would be condemnatory in one case might not be in another where the conditions were totally different. The same may be said of the unnecessary display of large gold fillings in the anterior teeth. The highest degree of skill is evinced by concealing rather than exposing gold. Many of the fillings required in the anterior teeth could be hidden from view if the operator would cut from the palatal rather than the labial border of the cavity. The Jenkins system of porcelain inlays, when once adopted and generally put in practice, will do much to limit this vulgar display of gold in the teeth. Only yesterday I was talking with an American dentist who has been residing on the continent of Europe. He told me that European ladies will not have gold fillings in their anterior teeth if there must be a display of the gold, much preferring white cement ones, even though it becomes necessary to renew them after a few months' time. I have no doubt that this objection has been one of the factors which has induced Dr. Jenkins to work so energetically to perfect his system of porcelain fillings. Just in proportion as education and refinement predominate, just in that proportion will the people demand the highest art, and that lies along the lines of the nearest attainable approach to nature. Barbaric people are pleased with glittering show. Civilized American and European people of refinement are pleased with natural beauty, and the nearest approach to that is nature itself. I should be glad indeed if the Odontological Society of the city of New York would put upon record its hearty protest against the indiscriminate practice of mutilating teeth for the purpose of crowning with gold, whether it be for the attachment of bridges or the restoration of so-called frail teeth.

Cosmos.

SOME CRITICISMS SUGGESTED BY GOLD CROWNS.

My attention was especially drawn to this subject during the past winter by quite a number of cases that I happened to see. In some mouths were gold crowns which had been so inserted as to display the gold in a most repulsive manner. Another class of cases showed the manner of gaining access into cavities between the incisors so that the teeth were permanently disfigured, and a display of gold or other filling material made necessary during the duration of those teeth. It seems to me that this is the age of the abuse of gold crowns. Crowning with gold has been, and is, one of the great advances that have been made for restoring to usefulness teeth that are decayed and broken down; but the abuse of those same gold crowns is a crying evil. The display of gold that we see in the mouths of people of good taste and refinement, as well as in the mouths of people of low degree, is simply barbarous, and to my mind it is on a par with the custom of the savages of South Africa who wear enormous rings in their ears or in their noses. I presume if these barbarians should see the gold in the mouths of the highly civilized people of the United States, they would think it just as barbarous as we consider their rings and other adornments.

The bicuspid gold crown is rarely needed, and rarely ought to be used in the mouth; but we see it continually, and coming from the hands of men from whom we expect better things. What has brought this subject more forcibly to my mind than anything else is the fact that a number of the cases that I have lately seen have been done by recent graduates from colleges, indicating that if they were not following the teaching of the professors in the dental schools, it was the result of their environment while in the college.

Let me cite a few cases: One is that of a refined, intelligent and prepossessing lady who had five gold bicuspid crowns in her mouth, two on either side of the upper jaw, and one on the lower; and to prove that gold ones were entirely unnecessary, I will tell you that I removed all of them. Strange to say, it had never occurred to this lady that they were disfiguring until I removed one of them, which was quite defective, and put a porcelain crown in place of it, and she was so pleased with the result that she requested me to remove the others, which I did, effecting a wonderful improvement in her appearance. The condition of this mouth was simply barbarous, because there was an unnecessary, extensive and disfiguring display of gold. These crowns were inserted by a dentist who had been in practice a number of years.

Another case which came under my observation last winter was that of a lady who had six gold crowns—four bicuspid and two upper central incisors. The effect was most repulsive, and the work was done by a young man who graduated from a dental college four years ago. The mechanical adaptation was good, but artistically and esthetically it was horrible. This lady was in my office last Saturday, and I said to her: "I have forgotten the reason you gave for having gold crowns put on your front teeth. What was it?" She said: "The dentist said that it was the only thing to do. I had been told he was a wonderfully skilful man, and I thought he was until he said, toward the finish of the work, that he was glad I had fallen into his hands, for the dentistry that I had had done before seemed to have been done by a blacksmith. I did not like that, for the gold fillings he referred to you had put in twenty-five years ago."

Another case was that of a child twelve years of age, with the six front teeth somewhat crowded, although there was a well-shaped arch. The dentist had extracted the lower left first bicuspid, which was free from decay, and crowned a first permanent lower molar on the same side, in which the pulp was dead. Just think of it! Extracting a perfect bicuspid so as to crown a pulpless first permanent molar in a child of twelve years. I thought that was one of the most outrageous cases of maltreatment I ever heard of. In ninety-nine cases out of a hundred such a tooth will not be retained more than five or six years. The gum is all inflamed now, and there is an incipient abscess there.

Another case which came to me in the early part of the summer was that of a lady who had a number of gold crowns, at least five, possibly six. They were all more or less defective, one being particularly so, more or less decay having taken place near the gum margin. I removed the crown, and to my astonishment found an almost perfect molar underneath. There had been a large, simple crown cavity in it, involving only the grinding surface—an easy cavity to fill—and yet the tooth had been covered by a gold crown. The crown had been imperfectly fitted, leaving a space between the gold and the neck of the tooth, and decay had occurred there. I filled the new cavity, and also the one on the grinding surface, and the natural crown is in evidence instead of the gold one. This occurred early in the summer, and I have not seen the lady since. My present intention is to remove every one of the crowns in that mouth, for from that one experience I have an impression that I shall find fairly good natural crowns under all the gold ones. The previous cases I have criticised

solely from an esthetic point of view, but this is a case of *rascality* pure and simple.

Another class of cases, of which several have come to my attention during last winter, is where cavities between the incisors have been opened into from the labial surface, leaving the *palatine* surface intact, although the cavities were not very large, thus disfiguring the teeth and necessitating the display of gold or other filling material. It is a discreditable practice, yet it is quite prevalent, and is done by men who are skilful manipulators of gold foil. I have seen some beautiful fillings in such cavities as far as the mechanical adaptation of the gold to the tooth is concerned, but from an artistic or esthetic point a wrong had been inflicted upon the patient.

There is another reason why the display of gold ought to be avoided if possible. Nothing is more beautiful, and there is nothing more admired, than perfect manly or womanly physical condition. Every decayed tooth is a defect, and a display of gold in the mouth calls attention to the fact that the wearer of it is physically defective, in regard to the teeth at least, and the persons in whose mouths such defects are seen are just so much less attractive in the eyes of those who see them. So one is doing an injury to his patients every time he permits a particle of gold to be displayed that can possibly be avoided. I do not say that gold should never be seen in the mouth. We must look at things from a practical standpoint; but if you can repair the ravages of decay with porcelain or insert gold so that it cannot be seen, do so, and you will do your patient a service. I have seen bicuspsids, and even incisors, crowned with gold, and it was the very best thing that could be done under the circumstances; but, while they were useful and served a good purpose, they were never beautiful. The subject of porcelain inlays would naturally come in here. One cause of the defect in porcelain inlays has been the cement. We can make a porcelain inlay so perfect that it is almost impossible to detect it; but in time the cement or oxyphosphate is dissolved, the inlay drops out, and you have a larger cavity than you had before. I think this line of investigation is a wise one, and if the cement that Dr. Walker has referred to will prove insoluble, and so adhesive as to retain the porcelain in the cavity, porcelain inlays would be perfection.

I have only introduced this subject, and I hope it may be continued by others. Go where you will, in the streets, in the hotels, in the theatres, and you see this display of gold. It is a crying evil. It is not in the line of true art, and we ought to do all in our power to prevent its spread.

Cosmos.

THE LIQUEFACTION OF HYDROGEN AND HELIUM.

The scientific world was thrown into a great state of excitement recently by the announcement that Professor Dewar of the Royal Institution, had at last succeeded in liquefying hydrogen and helium. The event is regarded as one of the very highest scientific importance. Many attempts have previously been made to liquefy hydrogen, but hitherto without success, the great difficulty being the extraordinary degree of cold that is necessary for the operation. It is difficult for the untrained mind to conceive the temperature at which hydrogen liquefies. It is not very far above that of space, or minus 273° C. It is stated that it is the lowest temperature yet observed. To produce such a temperature very elaborate apparatus is required. In no place on the face of the globe is there to be found so low a temperature as in the vat in the laboratory of the Royal Institution. What the scientific results of Professor Dewar's discovery will be, it would be hard to predict, but it will undoubtedly prove of enormous importance in placing a new and potent instrument in the hands of scientists which they have hitherto found lacking. All Englishmen will rejoice that the demonstration that all gases can now be liquefied adds another to the long roll of illustrious discoveries which already stand to the credit of British science.

Sanitary Record.

A LEAF REPRODUCED BY SALTPETRE.—A novelty is the transferring to paper of the natural outline and tints of a leaf, which, although not a photographic experiment, gives the fidelity of a photograph. It is done by taking a piece of fine linen, free from starch, and soaking it in a saturated solution of saltpetre until thoroughly soaked. Have ready a sheet of drawing or other smooth paper, and place on it the leaves of which it is desired to take impressions. Place over them the piece of linen wet with the solution, lay a sheet of paper over the linen, put all between two pieces of cardboard, and put into a letter press or under heavy weights for three or four days. When removed from the press the leaves will be found bleached perfectly white, while the shape of the leaf in all its natural colors will be found imprinted upon the paper. These leaf impressions can be used in many ways for decorative purposes.

THE TREATMENT OF SUPPURATION BY BICARBONATE OF SODA.

Brucker (*Thèse de Bordeaux*) has made a study of a fact observed by himself—namely, the influence of the reaction of the blood in the healing of certain conditions. Bearing in mind that the normal alkalinity of the blood shows important variations according to sex, age and as to whether the blood is arterial or venous in origin, and the diet to which the patient has been addicted, and that in certain pathological conditions these variations are very marked, so that a reduction in the normal alkalinity is observed in certain cases of febrile reaction due to bacterial intoxication, he has found that certain artificial intoxications can be combated by raising the alkalinity of the blood by the injection of alkaline serum. Going on these grounds, Brucker has principally investigated the influence of alkaline dressings in the treatment of local inflammatory affections, and according to his observations such a dressing, whether moist or dry, very rapidly reduces the inflammation, suppurative or otherwise, and causes rapid healing of wounds. This seems independent of any antiseptic property in the proper sense of the word. The method employed by him is to apply the dressing of absorbent wool on ordinary principles, using merely a 2-per-cent. solution of bicarbonate of soda, or in some cases vaseline and bicarbonate (1 in 25), or the soda may be applied directly in the form of a powder. He finds that strong solutions do not act more quickly than a 2-per-cent., showing that the chief agent is the alkali, and not any antiseptic principle. The same method may be applied for purulent otitis, etc.

British Medical Journal.

ON RESTORING CONSCIOUSNESS.

Dr. Bowles.

In all unconscious, comatose or syncopal conditions, however subtle or obscure the cause may be, whether from accident or from disease, whether from concussion or compression, whether from alcohol poisoning or from drugs, whether from suffocation or from drowning, or from any other cause, we have a condition of (in a physical sense) practical death of the body; a condition in which the patient cannot lift a finger to avert impending death, so that, if he is to be saved, it must be done with the help of those around him; he is now as much subject to the force of gravity as the dead bodies upon which we experimented

in the post-mortem room, and if there are physical difficulties in the way interfering with respiration or circulation, they must at once be removed. Anesthesia is a condition essentially belonging to this category, but it is clinically often complicated by a mixed condition of syncope and apnea, and it is by no means easy to separate the one from the other.

It is clear that in the syncope of anesthesia the smallest interference with respiration is an instant danger; for to relieve lungs already surcharged with chloroform vapor we desire, in the first place, the expulsion of the noxious contents and to replace them with pure air. One's natural instinct is to fly to artificial respiration at once; but let us beware at such a moment of what a friend of mine calls "the vigor of fright."

In syncope the greatest care must be taken to avoid disturbance or pulling about of the body; if the ghost of a breath is being taken, wait and watch; a person nigh unto death wants very little air, metabolism is almost at a standstill, and as much air as the patient wants at that moment nature will supply. If we wish to prevent the extinction of dying embers, we do not violently disturb them by "poking the fire," or we dissipate heat, and so extinguish the spark that kept them alive. I have seen cases of illness in which it was certain that physical disturbance during syncope put the patient in imminent peril by calling on the heart for extra effort at a moment when that effort was impossible.

British Medical Journal.

SIXTY-SIX YEARS MAKE AN "AGED" PERSON.—The Supreme Court of Georgia thinks that it would be difficult to designate an exact period of life when one might with certainty be said to have become aged. And, while it concludes that the term "aged" as applied to human beings is not for all purposes susceptible of precise definition, and that it is not practical to arbitrarily fix a period of life at which the condition of being aged may be said to have certainly begun, it holds, in the recent case of *Allen vs. Pearce*, that it is safe to say that a man sixty-six years old is entitled to an exemption of his property from levy and sale under that clause of the constitution of Georgia allowing this right to "every aged or infirm person," and this though he may be a hale and hearty man. In an English case it has been held that persons fifty years of age are aged, within the meaning of the statute of charitable uses, providing for gifts for the "relief of aged and impotent and poor people."

Digest.

NATURAL INLAYS.

Dr. R. H. Cool, of California, makes natural inlays for exposed cavities. He grinds to fit a piece of a natural tooth similar in color and corresponding part, "using a small screw inserted horizontally into the tooth, the open end of which is fitted into the inlay." All holden into place by cement. "The screw is first set into the tooth, then fastened into the inlay with cement that is used to hold it in place after the screw is set." If the pulp is alive it is not disturbed. One advantage claimed for the natural inlay over an artificial one is that it will gradually assume the texture of the natural tooth "if it is of the same temperature." The reason there need not be so much pains taken in the selection of color and texture, he says, is that

How this is, nor why the inlayed piece does not decay, or become deteriorated is not explained. But, he says, he has known them to last many years in good condition.

Dr. Goddard, in the discussion that followed, said his experience was a disappointment. He said:

DEATH IN A DENTIST'S PREMISES.—An unusual incident occurred in a dentist's place of business in Dundee recently. The wife of a police constable and her daughter went to a dentist in Bain Square in order that the daughter might have a tooth extracted. After the operation had been successfully performed, they left to return home, and just as they were descending the dentist's stairs, the mother suddenly became ill and expired. It was rumored in the city that it was the dentist's patient who died. That, however, was not the case. Some years ago, in a London practice, a patient quietly expired while in the dentist's waiting-room, and the rumor was circulated that he died under an operation.

Dental Science.

The death rate of the world is about sixty-seven a minute, and the birth rate seventy a minute. This apparently slight difference causes a yearly increase in the population of over 1,500,000 souls.

DIED LATELY IN HOLLAND.

Dr. Gardner Quincy Colton, through whose instrumentality "nitrous oxide gas" was first used in dentistry, died August 9th, 1898, in Rotterdam, Holland. He had been on a visit to Europe, and was about to return home, when he succumbed to a complication of diseases brought on by old age.

Dr. Colton was born in Georgia, Vt., February 7th, 1814, and was the twelfth child of his parents. He first learned chair-making, and when twenty-one years old came to New York, where he followed his trade, studying all the time, however, in the hope of becoming a physician. In 1842 he entered the College of Physicians and Surgeons, and later studied in the office of the late Dr. Willard Parker.

Two years after, he began to deliver lectures on physiology and chemical phenomena. He had acquired a knowledge of electricity, a science then in its infancy, and invented an electric motor, which he exhibited, illustrating his lectures with it. This motor is now in the Smithsonian Institute in Washington.

Dr. Colton went to California in 1849, where he searched for gold and practiced medicine among the miners. He was the first man in California to be appointed a justice of the peace. With a competence, he returned to the East and went about the country lecturing, telling his audiences of the anesthetic properties of the laughing gas. In 1863 he established an office in the Cooper Institute. A few years later he was able to visit Paris with a record of 20,000 administrations. Returning to America, he opened offices in Philadelphia, Boston, Baltimore and several other cities, and thus, through his energy and success, the use of nitrous oxide gas as an anesthetic became thoroughly established, and dentists throughout the length and breadth of the land began to use it, and it dates from the re-discovery in 1863.

Away back in 1844, when he was lecturing in Hartford, Conn., and showing the effects of nitrous oxide gas on persons to whom he administered it on the stage, Dr. Horace Wells, who became one of his subjects, was impressed with the possibility of using the gas in dentistry. He told Dr. Colton of his idea, and the next day he had the gas administered to him and a tooth extracted.

Dr. Colton was also an author and a Shakespearean scholar. He published a brochure on Shakespeare and the Bible, and wrote a good deal upon the discovery of anesthesia.

C. S. McNeille, D.D.S.

REMOVING THE PULP.

Dr. F. H. Bowman.

I have the rubber-dam in place, and proceed to dry out the bulbous part of the canal with hot air. After getting it as dry as possible, I prepare a ball of temporary stopping large enough to nicely cover the opening; take a small pellet of cotton, very loosely rolled, dip it in chloroform, place in bulbous portion, heat my temporary stopping, place it over the opening, and immediately press on it with a suitable burnisher or tightly rolled ball of cotton. If the patient gives a slight flinch, you can remove cotton and stopping and work away at those roots as long as you please. In using the chloroform it softens the stopping enough to make a tight joint, and very little practice is required to make a success of the operation every time.

I commenced by using only where arsenic had been applied, but am gradually enlarging its sphere of usefulness. Take the following, for instance: Lateral incisor with large gold filling, tooth very tender on percussion, and had been giving severe pain for twenty-four hours. I drilled through palatal portion in direction of root, but found on drilling into the nerve that it was so sensitive I could not touch it. The opening I had made was very fine, but by flooding with chloroform and placing a piece of temporary stopping over the opening and pressing with the finger, I was able to open with large bur, then by using a pellet of cotton, I removed the nerve without pain.

STUDY OF DENTISTRY IN FRANCE.—By I. St. Just, M.D., Paris. The laws have been modified at frequent intervals and new changes will probably be made again. No one can practice in France without a diploma from the French government. Until recently, a foreigner producing a diploma issued by a foreign faculty could easily obtain from the Secretary of Public Instruction a temporary or even a permanent permit to practice his profession, but this privilege is no longer granted.

The School for Dentistry was established only in 1886. The period of study is three years, and the student must produce a diploma of bachelor or a certificate of high studies.

A foreign dentist can practice in France after passing the examination, or he may be excused from part of the lectures. An American dentist is seldom refused the privilege of practicing, and this is due to the late Dr. Evans. *St. Louis Med. Brief.*

PRACTICAL POINTS.

By Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Setting Porcelain Inlays.—Inlays set with Canada balsam, dissolved in benzole, are much more durably fixed in position than when imbedded in a film of oxyphosphate—provided an accute fit has been obtained.

W. Booth Pearsall, Quarterly Circular.

Heat in the Diagnosis of Obscure Cases.—Heat is of very great value as a test for diseased pulp tending to die in a confined space. Apply by means of mineral talc or French chalk, cut to shape for carrying in a porte-polisher. Absorbs heat readily ; may be heated hundreds of times ; does not corrode.

Dr. Brackett, International Den. Jour.

Root-canal Filling.—Fill canals with powdered asbestos made into a thin paste with a 50 per cent. solution silver nitrate, pumping it into the canal by the aid of a broach wrapped with cotton, protect with Harvard cement. Fill cavity after from 48 to 96 hours.

W. T. McLean, Dental Cosmos.

To Check Excessive Flow of Saliva.—The administration of sulphate of atropine, $\frac{1}{120}$ gr., three-quarters of an hour previous to operation, will render the mouth quite dry, though not uncomfortably so, the effect lasting from four to five hours.

H. O. Loque, Ohio Den. Jour.

Preparation Bottles—Clean Necks.—A coating of vaseline on the glass stoppers and on the inside of the necks of varnish and other bottles will keep them free from incrustations.

R. B. Gentle, Indiana Den. Jour.

Sterilization of Instruments—Formaldehyde.—*Bierring* concludes that as a sterilizing agent for surgical instruments, an alcohol gas generator (formaldehyde) may be used with an exposure of at least thirty minutes, when confined to a space not exceeding two and a half cubic feet.

Elmer G. Horton, Dental Cosmos.

Fungoid Growth of Pulp.—Pack around the pulp small wedges of cotton saturated with a strong solution tincture iodine, and afterward with cabolic acid. This will reduce the growth without marked pain. Then remove and fill canals as usual.

B. G. Maercklein, Dental Review.

Hypodermic Injections—Precautions.—(1) Avoid the periosteum or sloughing, as exfoliation may be the consequence.

A. O. Ross.

(2) Avoid veins, as there is a possibility that the drug might enter the circulation and be carried to the heart and lungs.

L. E. Custer, Dental Cosmos.

Root-Canal Filling.—Dry the canal thoroughly, moisten slightly with oil of cajeput and follow with enough chloro-percha to slightly moisten the inner walls of the dentin. Then press in gutta-percha cones with the pliers, softening them with a few blasts of hot air from the syringe, instead of heating the points of canal pluggers. In this way the gutta-percha will pack easily and thoroughly, as it will not adhere to the plugger points as when dry and heated.

A. H. Peck, Ohio Den. Journal.

Restoration of Tooth Form.—There is an almost unlimited field of usefulness, and an opportunity for the display of much inventive genius, in the restoration of badly broken-down teeth, by means of amalgam and screws. There is no department of dental practice so capable of producing useful results.

Dental Digest (New York Letter).

Carbolate of Iodin.—To about two or three ozs. of distilled or filtered water (which has been boiled and reduced to 100 degrees F.,) add first 10 or 12 minims of Calvert's crystal carbolic acid No. 1; then the same quantity of officinal tincture iodine. Stir this up by filling syringe bulb and injecting back into the glass. When gingival inflammation is present use as hot as patient can bear it. Prepare fresh just before using.

E. G. Betty, Dental Review.

A Handy Matrix.—When two adjacent cavities are to be filled with one mix of cement, a neat matrix may be found in a narrow ribbon of rubber-dam drawn taut over the adjacent tooth until the first cavity is filled, and then reversed over the first fitting until the second cavity is filled. When the fillings are hard, trim away the strip quite close; what remains between the two fillings will act as a separator until the fillings are finished at the next sitting.

J. T. Danforth, Ohio Den. Journal.

Disinfection of Dentine Over Nearly Exposed Pulp.—Dry out with warm air and bathe cavity with a drop of sol. caustic soda, which will be sucked up in the dry tubuli and neutralize any acid present. Dry out with hot air again and flood cavity

with oil of cloves ; absorb surplus with bibulous paper and apply hot air again. The oil of cloves when heated to the point of volatilization will penetrate into the tubules and so embalm the substance of the dentine that no fermentative action can occur.

C. B. Gohlson, Ohio Den. Jour.

A Fusible Alloy.—An alloy composed of :

Bismuth	5 parts
Lead	3 "
Tin	2 "
Cadmium	2 "

can be poured directly into a modeling compound or wet plaster impression, giving a smooth and accurate model. If of modeling compound, oil it first, cast the alloy in a mush-like consistency, jar the impression quickly, cool in water, and separate. If wet plaster, soak with sperm oil, and pour at a little higher temperature.

Grant Molymaux, Dental Register.

Calendula ; its Properties.—Calendula stimulates proliferation of white blood corpuscles ; increases the quantity of fibrine and aids its transformation into connective tissue ; induces healing by first intention ; promotes granulation and prevents disfiguring scars ; promotes favorable cicatrization with least possible amount of suppuration ; prevents or arrests gangrene and aids in healing or reproducing bone.

Hence its value in the treatment of putrescent pulp canals, abscesses, pyorrhea, after extractions, etc.

W. I. Wallace, Items of Interest.

Pyorrhea—Replantation of Teeth.—Remove the teeth ; remove all calculus from the roots ; remove contents of pulp chamber and root-canals ; fill canals with paraffin and salol. Inject the gums with 2 per cent. cocaine solution ; sterilize sockets with pyrozone ; deepen socket sufficiently to receive the teeth. Place a few crystals of resorcin on the apex of the sterilized tooth and place it in position, splinting till firm. A cure for pyorrhea.

Robt. Eng. Payne, S. D. Association, 1897.

A Styptic—Carbolized Rosin.—

Common rosin, pulverized	3 iv
Carbolic acid, 95 per cent.	3 ij
Chloroform	3 ij

Make a short thick cotton rope, larger than the wound to be treated. Moisten the end well with the compound, and plug the cavity tightly. The bleeding will cease almost as if by magic. Its adherence in the tissue makes it unlikely to be forced out by blood pressure. *J. Van Pelt Wilks, Southern Den. Journal.*

ITEMS.

ARSENIC IN DEVITALIZING PULPS.—The severe pains accompanying applications of arsenic to the dental pulp may be considerably lessened if an equal amount of antipyrine is used in connection with the arsenical paste. The antipyrine reduces the blood supply, and hence prevents the congestion that invariably results from the use of arsenic. *Digest.*

METHOD OF QUICKLY FILLING LARGE CAVITIES.—Place in the cavity a piece of gold foil, No. 6 or 10, large enough to overlap the cavity edges when forced against the bottom of the cavity. Place within this a piece of lead large enough to fill the cavity two-thirds full. With a plugger condense the lead, spreading it against the walls of the cavity, causing the gold to conform perfectly. Next turn in the over-lapping gold, thus covering the lead and presenting a gold surface. Complete the filling as though gold has been used throughout.

Dr. Cochran, Items.

PROTECTIVE COATING FOR CAVITIES IN TEETH.—Amalgam should never be placed over the pulp of a tooth without having the bottom of the cavity lined. In deep cavities the best protection is a thin layer of chloro-percha. For shallow cavities I prefer a coating of shellac or sandarach varnish to coat cavities, using a layer of paper cut out to conform to the size of the cavity, placing this in the bottom over the pulp.

By using these precautions we eliminate almost entirely all danger from thermal shock, and if a filling has to be removed, the discoloration is not so great. *A. L. Ott, in Items.*

SUGAR FROM BEETS.—To sweeten the world it takes 7,000,000 tons of sugar, of which two-sevenths are consumed in the United States. Of this enormous quantity four million tons are from sugar beets. The oldest sugar beet manufactory in this country is in Alvarado, Cal., erected twenty years ago. In 1894 there were only seven manufactories in the United States. An ordinary beet sugar factory has a capacity of 250 tons of beets per day, and should make 200 to 240 pounds of sugar per ton. At this rate it would take more than 500 factories to supply the United States with sugar.

PLASTER MODELS.—To produce plaster models that are dense, hard, and that will remain in perfect continuity when exposed to atmosphere, the Heidelberg Plaster Company has added to the water a liberal addition of ammonium triboricum. The firm has had this simple method patented in all European countries, and it is claimed that statuary designs made from this composite material endure the abuse of transportation and exposure without damaging the device. Such plaster might be especially serviceable in molding features to demonstrate the progress of correcting abnormal dental or facial outlines.

Trans. by Dr. B. J. Cigrand from Zahntechnische Reform.

RESORCIN AS A LOCAL ANESTHETIC.—Resorcin has the properties of an antiseptic, since it is a derivative of carbolic acid and possesses many of its powers. Its qualities as a local anesthetic, however, are of considerable interest. In stomatitis there is great need of such a remedy, resorcine 5 parts, water 30 parts. On account of its less irritating properties, it is considered one of the best antiseptic agents to be employed in the oral cavity. In diphtheria or other diseases causing a sloughing sore, no better results can be had than by applying a mixture of resorcin to the affected portion. It accomplishes all that can be expected of carbolic acid, and does it in a painless manner. For dental ulcerations it can be used in the form of a liquid. As a dressing for wounds, it should be used in crystal form. *Dental Digest.*

ILLUMINATION OF THE CERVICAL BORDER.—On dark days I concentrate the light by the condensing lens, held by an adjustable rod attached to an upright screwed into the iron frame of the movable bracket attached to the chair. This intensified light, when it is possible, is reflected into the cavity by the ordinary mouth-mirror held in the left hand, or held by the attendant. Sometimes I reflect this concentrated light, or ordinary daylight, by a little mouth-mirror held by a rod attached to a weighted standard, which sets on the tray. The mirror is attached by a ball-and-socket joint, so that it can be set at any angle. For one who has no attendant this is convenient, as it leaves the left hand free to hold the gold in place in commencing a filling. These devices are somewhat in the way, but, if one can become accustomed to them, they are a real help. I have also used the electric light, but I have thought it rather trying to the eyes.

S. G. Perry in International.

TREATMENT OF BURNS.—The most exquisitely painful burns are assuaged in a few moments by an application of campho-phenique after the following formula:

R.—Cocaine hydrochlorate gr. v.
 Campho-phenique ʒss.
 Olive oil ʒss.

M.—Rub up the cocaine and campho-phenique and add the olive oil.

A man whose hand had been torn and badly burned by an electrical discharge, the pain of which was so severe that he fainted twice before the dressing could be applied, expressed himself as without pain in less than one minute after the application.
St. Louis Medical and Surgical Journal.

LIQUEFIED AIR AS A BEVERAGE.—The Paris correspondent of the *British Medical Journal* states that at a public dinner in Paris the other day, at which M. d'Arsonval was present, the guests were astonished by having liquefied air poured into their glasses of champagne. A year ago the Emperor of Germany was offered a glass of liquefied air. He raised the glass in honor of science, but refrained from putting it to his lips; the liquefied air in it would have burned them like hot coals. The liquefied air poured into the champagne became dispersed in white clouds, and mingled with the surrounding atmosphere. A bottle of air, if liquefied, can bear a transit of sixty hours without volatilization taking place.
Philadelphia Medical Journal.

REPAIRING A GOLD CROWN.—Just suppose you have made a gold crown, and in finishing you go through the shell, making an unsightly hole. If you undertake to solder this, the chances are that you will have three or four holes caused by the solder melting out at the joints. To prevent this trouble, paint the crown all over the outside with whiting mixed thin, except around the hole which you wish to repair; fill this with a plug made from gold foil, touch it up with a drop of borax water, and put a bit of gold solder inside, heat it with blowpipe, and success will be the result.

E. A. Randall, D.D.S., in Dominion Journal.

The following are said to be about the comparative risks of anesthetics:

Chloroform, in 2,039 cases one death; ether, in 5,090 cases one death; ethyl bromide, in 5,228 cases one death; nitrous oxide, in 500,000 cases one death.

EDITORIAL.

With this number I close my editorial connection with the DENTAL BRIEF. Dr. Wilbur F. Litch will be my successor. I bespeak for him a cordial reception by our readers. He is a man of experience in editorial work, and a successful practitioner.

My health has not been good for some time, and I believe this retirement will be a benefit.

I wish my work had been better, and yet I feel that I am parting from many dear friends. Good by. God bless you all with a good future.

T. B. Welch.

THE MAN WITHOUT CHANGE.

The man that has no changes makes no improvements. Better make many changes to find only a few that are desirable, than to make no changes at all.

We sometimes learn as much, and find ourselves improved as much in skill and thoughtfulness, by many failures as by a few successes. It is often in spite of our failures, and by their maturing experiences, that we advance.

Common things should not satisfy us. We should be continually reaching out for the uncommon and the extraordinary, the mysterious and the unknown, the impossible made possible by extraordinary efforts.

It is the man of thought and ambition, of courage and aggression, of trial as by fire, that makes for himself fame, and honorable position, and substantial reward. Genius, tact and practical wisdom are seen only in doing what common people cannot do, and reaping rewards that are quite beyond the common reach.

But to do extraordinary things requires extraordinary ability—not, perhaps, so much what is innate, as that which is wrought in us by doing extraordinary work, by persevering persistency, by long plodding and by ever doing our best that we may be able to do still better.

LIFE MORE ABUNDANT.

A man has no business to be a dentist unless he has abundance of life, and to spare. A mopish, sleepy, half-alive man had better turn his attention to grave-digging. Our patients with their exhausting troubles feel quite enough of the shadows of death, to have the one they come to for relief to feel the same gloominess. There are Christians that have just enough life to be miserable, and to be a disgrace to the church. Better go to their own where death reigns. So of these boy-faced, lean-souled, cold-hearted, dyspeptic dentists. Their very looks are enough to make one faint on their threshold. No wonder that our patients associate the dentist with the devil, and his office with hell.

Come, come, either waken up, sweeten up, and get filled up with life and love and cheer, overflowing with winsomeness, or give place to a brighter, better, happier man.

SENSITIVE DENTINE.

Sensitive dentine is not so difficult of control as some suppose. A little paste of oil of cloves, creosote and tannin on cotton, with a few finely crushed crystals of cocaine on the surface of the paste is good. Let it remain in the cavity two or three days covered with cotton moistened with sandarach varnish.

For immediate and temporary effect let the patient press on the tooth a little oil cloth or rubber bag filled with pulverized ice—first slightly, and gradually more closely until the tooth is benumbed.

But for obstinate, deep-seated, sensitive decay, and for a permanent cure, where the pulp is not exposed or nearly so, there is perhaps nothing better than a few fine scrapings of nitrate of silver, substituted for the cocaine in the above treatment. It will not only remove the sensitiveness, but will permanently harden the dentine, so as to prevent further decay. I have in this way removed sensitiveness of superficial decay on the surface and neck of teeth, and afterward found the affected part so hard as to need but little further treatment, and no filling.

WILLINGNESS.

Willingness has more to do with our success than we generally suppose. Of course we do not mean a simple passive willingness to receive a fortune when it is left at our door, without effort on our part to bring it. It must be a vigorous, aggressive, untiring willingness "to work out our own salvation with fear and trembling;" a willingness to fight, to struggle, "to endure as good soldiers;" a willingness that seeks opportunities, seizes on advantages, and holds on to down right hard work with the utmost tenacity; a willingness that throws body and soul and the very life into the pursuit of success. We must be willing to drive our own team, direct our own course, and stand by our own results.

We ought to be thankful that these results do not depend on wonderful abilities; "for if there is first a willing mind, it is accepted according to that a man has, and not according to that a man has not." The weakest of us have some good ideas, some ability for something. I never saw an idiot that could not do something. And often the very fact that we are defective in many directions gives an ability to concentrate on some one thing; and some one idea carried out with a will may accomplish wonders. But there must be a willingness to do our best. And though that best may be very insignificant, doing our best just where we are, and in the little we can do, will be sure to open up some avenue of work or thought or special genius that will lead to greater things, and final usefulness and success.

A young man of 23 lost both his legs and his left arm in a railroad accident. He was only a tramp, and so as the surgeon dismissed him with his stumps healed he was sent to the poor house, as useless trash.

"Why," said I to him one day, "there ought to be something you can do, something you can do just as well as you ever could have done."

"I never could do anything, anyhow," he replied. "I have no gift. I have a good common school education—perhaps a

little better than that—but I have never found anything yet that I could make a living by.”

“But are you willing to do what you can?”

“I have been thinking of that very thing,” said he; “I believe I have lacked a strong will for anything. I have not had a steady, enthusiastic purpose before me—an indomitable will that sticks to something till it is a success. There must be something that I could have done when I was an able bodied man, if I had only sought it diligently; and there may be something even now. I wish somebody would kick me, and wake me up.”

“Well,” I replied, “I should judge you had been kicked pretty severely, and that now it is time to wake up. Perhaps your very misfortune may be the means of making of you something more than you ever would have been without it.”

I suggested a typewriter. He seized the idea instantly. A cheap one was procured, and he learned with a rapidity that astonished both himself and his friends. Then he added stenography. In less than a year he left the Poor House for a position in a railroad office at three dollars a week and board. He was so willing to learn, and to do anything in his line, that he is now receiving twelve dollars a week and board.

“If there is, first, a willing mind, it is accepted according to that a man has, and not according to that he has not.”

WHO WILL SUCCEED ?

It needs some courage to persevere in a pursuit in which nine out of ten fail. What guarantee have we that we shall be the tenth fortunate one? Certainly our blunders often remind us that we must be of the nine who will fail. Yet, in all pursuits, more than this proportion fail to get a respectable living, and not more than one in fifty make a competence in anything. We might suppose that by taking some pursuit which requires little skill and planning and foresight, we might be almost sure of success. But here there are too many competitors; for it is here we find the multitude, the flood-wood, of society, willing or obliged to do anything, at any price.

No; the only way to meet the greatest probabilities for success is to face some of the most difficult and exacting pursuits, and select the one for which we believe ourself best fitted; then pitch in with all our might and main, with brain and muscle, with heart and soul and spirit, and stick to it through thick and thin, through difficulties and adversities, and in spite of everything. Even then we may fail, either because we are mistaken in our choice, or because of circumstances over which we had no control. Then, again, some succeed in spite of an ill choice and ill surroundings, and ills of a thousand kind—succeed in spite of them all, and perhaps because of them.

I had a student once who was a perfect blunderhead; his fingers were all thumbs, and his judgment was so erratic I could never depend on the outcome of his simplest movements. For these reasons he had been a lamentable failure as a printer. But he had a nice wife and two beautiful children, and therefore, though he was forty-five, and old for that age, I undertook to teach him dentistry as his last resort to make a living. He sent his family to his wife's parents, and pitched in.

One of the first things I put him at showed his want of common sense. I was making some amalgam. My furnace held three crucibles. Putting them in, I turned in from two zinc cups and one tin cup two-thirds of the contents of each into each crucible, and told him to turn in the remainder into each, as numbered, when what I had poured in was melted down. When I returned he very solemnly informed me that he had succeeded in crowding the two zinc cups into their crucibles, but that the tin cup would not melt! At another time, in helping me in the same work, his business was to put the mould, after I had filled it with the melted metal, into water to cool, and then, after removing the ingot, placing the mould back in its place to receive another filling of molten metal. "But," said I, "be sure the mould is perfectly dry, or the dampness will explode the metal." All went well for a time, when bang! went the molten metal as out of a cannon. I was covered with the burning contents on face and hands and clothes.

"Oh," said he, "I forgot that time to dry the mould."

It was weeks before I was in trim again.

One day, while watching the vulcanizer, he went to sleep. Bang! went my vulcanizer, the top crashing through the ceiling and roof, and the flask through the partition into a millinery shop.

A new vulcanizer was bought, and the building repaired, all thankful—especially the frightened millinery girls—that it was nothing worse.

He was repeatedly cautioned that, after vulcanizing, to be careful not to take off the top till it was cool. But one time, to my surprise, he was in a hurry—the first time I had ever known him to be, for he was the slowest mortal I ever saw. One day I heard from the laboratory a cry of dire distress. Running in I found his face covered with the scalding water and steam from the vulcanizer he had prematurely opened. It was ten days before the doctor could assure him that his eyes were not gone.

For the first three or four months troubles and blunders and failures were his common portion.

And yet, that blunderbus became a successful dentist. He learned from his blunders, and became more careful for his failures. In three years he was established in a good practice, with his family about him, and he is a leading citizen in his community. But my! how he worked and studied, and tried every perplexing manipulation over and over again. In ten years he had a nice residence and office of his own, and money in the bank.



HALE'S RULES OF LIFE.—In his address to the Harvard students recently Dr. Edward Everett Hale laid down these three rules, which he said had been the greatest help to him in life:

Be in the open air all you can.

Every day hold converse with a superior.

Rub against the rank and file daily.

BRIEFS.

FROM INFORMATION.

No fewer than 12,000,000 acres of land have been made fruitful in the Sahara desert, an enterprise representing perhaps the most remarkable example of irrigation by means of artesian wells which can be found anywhere.

There are two great walls in China—one is forty feet thick and fifty feet high, and surrounds Peking. It is sixteen miles in circumference. The other—the Great Wall of China—is nearly 1,300 miles long, and was built over 2,000 years ago.

The health authorities of London, England, have issued a warning against the use of American chewing gum, which is becoming the rage among children. The authorities consider it more dangerous than ice-cream which the Italians sell in the street, and against which there has been a rigorous crusade.

A boring has just been made at Rybintz, in Silesia, in which the earth's crust has been penetrated to the depth of 6,630 feet. This is the greatest depth thus far attained. The boring was made for scientific purposes. No unusual features, however, presented themselves, except that the thermometer indicated at that depth the pretty high temperature of 150 degrees Fahrenheit.

One of the most interesting announcements of the day is that of the assured progress of tapping the river Nile at its higher level above the cataracts, conducting the water to vertical shafts, down which it will fall to drive turbines, then using the power so generated to run dynamos, from which electricity in the form of alternating or continuous current will be transmitted to points near or remote. The water, after passing through the turbines, will be restored to the river at a lower level or else used to irrigate the land. There will be no waste of material, as in burning coal, and no smoke.

Electricity will be applied, not only in pumping for the irrigation, but in driving the machinery for preparing the raw products of the soil, spinning cotton, weaving silk, and various other industries.

A man died in New Orleans a few days ago as a result of laughter. He was at the theatre, and began laughing so heartily that he lost control of himself and fell to the floor, dying in syncope.

GUM ARABIC IN SOLDERING.—To prevent the solder from moving or dislocating while using the blow-pipe, add an equal amount of powdered gum arabic to the borax powder. The gum will not interfere with the function of the borax, and it insures stability to the pieces of solder. When you desire to limit the solder to portions of the gold, paint the gold with a coat of rouge.

Mount Vesuvius is now presenting the grandest spectacle since 1872, due to a violent outburst of activity. The central crater and a number of new mouths are emitting lava and ashes. Three imposing streams are flowing down the mountain side, burning the chestnut woods at the base of Monte Somma, nearly reaching the observatory, destroying part of the funicular railroad leading to it.

VEGETABLE DIET IN DIABETES.—An Italian medical journal announces a new treatment of diabetes extolled by Professor Lupo, of Naples. It consists in an exclusively vegetable diet, all sorts of vegetables being permitted, including peas, beans and fruit. Two cases, according to this authority, are reported, the result in one case being characterized as marvelous. In both albumen and sugar disappeared from the urine within eighteen days.

SENSITIVE DENTINE.—Dr. C. B. Rohland, of Illinois, says: "By adding just sufficient carbolic crystals to cocaine hydrochlorate and rubbing together with a spatula until the cocaine is dissolved, a thick syrup is obtained, which is escharotic, antiseptic, obtundent. With this he often obtains most gratifying results in the treatment of sensitive dentine in cavities of decay. It should be used with the rubber-dam, dryness to the verge of desiccation secured, applied warm, and treated *in situ* with the hot air syringe, as hot as can be borne, and again dried before excavating. If one application fails to give the desired result, two almost invariably will be effective. *Ohio Journal.*

As affording some idea of the amount of light gold now in circulation, it is stated that a financier in London accepted £1,000 largely made up of half-sovereigns, and that, on the amount being weighed at his bankers it was found to be short by £19.

We put our life in our very writing and talking. Plainness of speech and composition is a reflection of simple truthfulness unadorned. Both are beautiful in their very simplicity. Fancy flights now and then, a few shouts and exclamations of exultation, just occasionally to give vent to the spirits, is nice in diction and in life. But the main trend of both the style and the life should be serene to be admired, and unassuming to be enjoyed. Money cannot buy such a life, neither can superficial effort mature such a style. Both depend on the hidden springs within, the condition of the spirits, the affection, the inner life.

ALCOHOL AND THE RUSSIAN DEATH-RATE.—An official inquiry into the comparatively larger increase in the Tartar population of the city and government of Kazan has, according to the *Kamsko Volshki Krai*, brought out some remarkable facts as to the effect of alcoholic indulgence on the death-rate. The Kazan Tartars, numbering about 640,000, have a rate of mortality of only 21 in 1,000, while the mortality among the Russians is 40 in 1,000. The general conditions among orthodox Russians and Mohammedan Tartars are practically the same, except in so far as personal habits are concerned. The medical investigation leaves no room for doubt that the lesser mortality of the Mohammedan Tartars is directly due to their abstinence from spirituous liquors, in which the Russians indulge freely.

A CHINESE NAIL.—Isaac T. Headland, Professor in Peking University, tells of a man who came to receive treatment in a hospital in China, who had given many years of his life to nail culture. From his seventeenth year he had allowed the nails on his third and little fingers to grow without trimming, and when Dr. Curtiss measured them he was in his fortieth year. The nails were one foot in length from the ends of the fingers. The man "had fitted small bamboo tubes on the ends of his fingers as shields for his nails, and thus had protected them for twenty-three years." He seemed to think that he had not lived in vain, but absolutely he had done nothing notable except to make his hands useless by developing two nails. *The Advance.*

FOR OUR PATIENTS.

THE ART OF LIVING LONG.

Viveurs, as a rule, prefer to live well, rather than long. Hence the well-known phrase, "short and sweet." Nevertheless, many persons would prefer "long and sweet." If one may judge by the zeal with which the newspapers give accounts of the few centenarians who here and there drag out a precarious existence, it would seem as if the doctor who could permit us to reach such an advanced age would deserve the benediction of his contemporaries.

Sir James Sawyer, in a recent lecture at Birmingham, has tried to satisfy this desire. The following is, according to him, what one must do to live a hundred years:

1. Sleep eight hours a day.
2. Sleep on the right side.
3. Open the window of one's bed-room at night.
4. Put a screen in front of the door.
5. Place one's bed away from the wall.
6. Take a bath the temperature of the body every morning, not a cold douche.
7. Take exercise before breakfast.
8. Eat little meat, and make sure it is thoroughly cooked.
9. (For adults.) Do not drink milk.
10. Eat much grain, in order to nourish the cells which destroy the germs of disease.
11. Avoid intoxicants, which destroy these cells.
12. Take daily exercise in the open air.
13. Keep no animals in living rooms. They may have the germs of disease.
14. Live as much as possible in the country.
15. Drink water, avoid humidity and the neighborhood of sewage pipes.
16. Vary one's occupation.
17. Take, from time to time, a short holiday.
18. Limit one's ambitions.
19. Restrain one's natural character.

These prescriptions are easy to follow. We do not guarantee their absolute efficacy, but there is no danger in trying them. And then, who knows?

European Edition of the New York Herald.

SEMI-ARTIFICIAL PEARLS.

Diamonds, rubies, emeralds and sapphires have all been produced in the laboratory, and it is now the turn of the pearl. The chemist, however, is not himself the maker of the new artificial pearls; he is only the collaborator. False pearls are made from mother-of-pearl, but their lustre is not up to the mark.

The Chinese have long introduced grains of sand and little knots of wire into the shell of the pearl oyster, that the animal, to relief itself from the irritation so caused, may coat the foreign substance with pearl. If this matter be inserted between the shell and the mantle, the oyster can eject it by contractions of his body. To prevent this M. Boutan, a French experimenter, has trepaned the shell, and introduced a small bead of nacre, which might, however, be a true pearl of a small size, through the hole, and fixed it by means of cement to the shell. This bead was in course of time covered with nacre by the oyster, and a fine large pearl was the result. Dealers cannot distinguish it from an Orient pearl.

The question of making pearls in this way was recently discussed at a meeting of the Academie des Sciences, Paris, and M. Bethelot, the famous chemist, observed that such a pearl could only be considered a true pearl if it had at least a hundred layers of the pearl nacre; otherwise it would only be a foreign substance covered with nacre. Of course, if the foreign matter is a pearl itself, this objection disappears, and we have the means of producing pearls at will.

According to M. Lacaze Duthler, some two years would be required for a hallotide to produce a big pearl. The artificial pearls of the trade, fabricated from nacre, could also be coated in the same way. Evidently the pearl mussel and oyster are about to be domesticated for the production of pearls, as the spider is for silk. Pearl divers may become a legend of the past.

Rochester Herald.

“TOOTHACHE.”

D. D. Atkinson, D.D.S.

People often ask how it is that a tooth can ache after the nerve has been killed; and so frequent is this inquiry that the inference must be that very many people are under the impression that all toothache has its seat in a nerve contained within the tooth, and that this being destroyed, ought to forever end the

possibility of pain in that particular tooth. That this idea is entirely erroneous is apparent to every dentist, but that it does prevail, even among otherwise intelligent people, can not be denied.

It is the purpose of this brief article to point out some of the causes of toothache in teeth which have either living or dead pulps.

Every tooth has in its center a natural cavity conforming in shape to the outlines of the crown thereof, with canals leading to the end of each root. In this cavity is contained a living pulp (if the tooth be impaired), commonly known as the nerve. It consists of blood-vessels and nerve-fibres, connected with the vascular system, and nerve-centers through a small aperture at the end of each root or fang.

Now, so long as this pulp is not disturbed by external interference, its functions will very likely be performed, and all will be well; but when decay attacks the tooth from the outside (and this is mentioned because it is the most frequent cause of toothache), and makes so much progress that this delicate pulp, which has heretofore been protected by its solid walls, is exposed to the irritating effect of outside agencies, it frequently becomes the seat of inflammation, characterized by intense pain, which by reflex action may be transmitted to other teeth, or may be confined to only the affected tooth. An application of the proper remedies will relieve the pain and, if desired, kill the nerve. This, for a period, will send the pain from the offending tooth, but if the pulp cavity and the canals along the roots are not properly treated and filled, a recurrence of pain will be almost sure to follow in a short time, but from a different cause.

In the living pulp the increased flow of blood pressing against the unyielding cavity wall had caused the pain. When the pulp has been devitalized, and left to decompose within the tooth, it becomes a seat of infection, charged with poisonous gases and microorganisms. These will find their way along the root-canal, and make an exit through the small opening at the end of the root, and be deposited at the apex of the bony socket which contains the roots of the tooth. Violent inflammation will immediately follow, growing more intense, unless relief is afforded, until it terminates in alveolar abscess, and is discharged in the form of pus somewhere, usually on the surface of the gum, all the time being characterized by intense soreness to the touch. A tooth which, having its "nerve" killed, has been properly disinfected and filled, nearly always enjoys immunity from the con-

dition above described, because there is no place for the lodgment of microorganisms. However, a tooth whose "nerve" is dead may remain for years inert, and yet might, upon some slight provocation, throw the patient into all the agonies of acute abscess. Without going further into the causes which lead to toothache, it is hoped this article has demonstrated how teeth whose "nerves" are killed can be the seat of that malady, as well as those whose "nerves" are intact.

Information.

TO CLEAN RUSTY INSTRUMENTS.—Fill a suitable vessel with saturated solution of stannous chloride (chloride of tin) in distilled water. Immerse the rusty instruments, and let them remain over night. Rub dry with chamois after rinsing in running water, and they will be of a bright silvery whiteness. *Digest.*

In all natural inlays or implanted teeth the part inserted will take on the color of the adjoining teeth or the adjoining part. That is a peculiarity in implanted teeth; but you must use a tooth, or section of tooth, of the same temperament as that upon which you are working. For instance, if a tooth is of a bilious temperament, or a nervous temperament, you want to use one of that temperament, not take the tooth of a bilious temperament for an operation upon the tooth of a nervous temperament. The teeth of the nervous temperament are of a bluish color; the bilious temperament of a yellowish color. With that care you can match a tooth almost perfectly.

TO LESSEN DANGER OF CRACKING IN WORKING PORCELAIN.—Teeth should be coated with shellac, which, under high temperature, forms a protecting film of carbon upon the facings, preventing etching by the silex in the investment, and lessening the danger of cracking.

J. E. Nyman, in Review.

An easy method of removing gutta-percha points from root-canals is to roughen the point of an Evans root-canal drier, heat the bulb, and pass the point slowly into the canal. Cool the bulb with a wet sponge, and on removing the points the gutta-percha will come with it.

British Journal.

There are some quiet, retiring dentists, having small practices, but who are capable and thorough operators, whose percentage of successful fillings may be greater than that of men

prominent as dentists. The kind of work they do is a good recommendation, but circumstances, influence and business tact often do quite as much as their work in procuring and sustaining patronage. Very successful men, at times, have severe failures, while highly successful and skilful work may come from the hands of a man considered an unsuccessful dentist.

THOROUGH CLEANSING OF THE TEETH.—Many persons, even belonging to the highest classes of society, believe in all good faith that they clean their teeth perfectly when they do not. The thorough cleansing of the mouth exacts much application, for even in a perfect denture there are between the teeth, both on the external as on the internal surfaces at the border of the gum, numerous intervening spaces where the food, strongly compressed during mastication, becomes lodged, and where it is retained. Thoroughness in cleansing is essential to have a mouth sufficiently, not to say irreproachably, clean.

Information.

HARDNESS NOT TO BE ENDURED.

A British volunteer has had the hardihood, according to the *London Weekly Telegraph*, to make the following confession. He says:

Some time ago I spent a week with a garrison battery in a South Coast fort. On the last day the sergeants sat down to an exceptionally fine dinner, the crowning glory of which was a large plum pudding. I had made the pudding two days before, had it boiled, and now, reheated, it made its appearance amid the welcome shouts of my brother warriors; and I, naturally, felt a bit proud of it, for I hadn't been a ship's cook for nothing.

"Seems mighty hard," remarked the sergeant-major, as he vainly tried to stick his fork into it. "Have you boiled us a cannon ball, Browney?"

"Or the regimental football?" asked another.

"Where did you get the flour from?" questioned Sergeant Smith.

"Where from?" I retorted. "From store No. 5, of course."

"The deuce you did!" roared the quartermaster sergeant. "Then, hang you, you've made the pudding with Portland cement!"

And so it proved. The pudding is now preserved in the battery museum.

THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, APRIL, 1899.

No. 4

ORIGINAL COMMUNICATIONS.

A SIMPLE METHOD OF ATTACHING FACINGS IN CROWN- AND BRIDGE-WORK.

*Wm. B. Warren, D.D.S., Philadelphia.**

Much diversity of opinion still exists as to the best means of attaching porcelain facings in crown- and bridge-work. The method herein described was devised by Dr. Wilbur F. Litch, and has been used by him in a large number of cases during the past ten years. Its special field of usefulness is in the artistic arrangement and safe attachment of incisor facings in the class of cases represented in Figs. 8 and 9.

To prepare a case after this method, the porcelain facing is ground for the crown or bridge tooth, as the case may be, in the usual manner, and the backing is adjusted as closely as possible; after which it is removed and the pin-holes enlarged, so that the pins of the porcelain tooth can readily pass through after they have been headed, as shown at *a*, Fig. 6.† It must be understood that it is necessary to use cross-pin teeth, so that the pins will be in the heaviest part of the backing when the case is finished. The backing should be made of heavy 22 carat gold or platinum, not less than No. 25 standard gauge. This thickness is necessary to prevent warping.

When the backing is ready to be invested, the under surface of it should be coated with plumbago to overcome the tendency of the melted gold to flow under it. Small graphite points, such as are used in lead pencils, in size about gauge 15, are then cut to fit the pin-holes, and are passed through them a short distance into the investment material before it sets, as indicated in

*Instructor in Crown- and Bridge-work, Pennsylvania College of Dental Surgery.

†For illustrations see pages 196 and 197.

Fig. 2. After the investment has become thoroughly hard, the graphite points are cut down with a corundum stone to the length desired. Eighteen carat gold plate (without zinc alloy) is then melted over the backing and around the graphites until they are imbedded in the gold.

To cover the still exposed ends of the graphites place over them a piece of 22 carat gold plate, and secure in place with 18 carat solder cut into exceedingly small pieces; by this means the covering plate can be soldered without displacement, which would occur under the heavy flow of pieces of solder larger than its own bulk.

The backing, which by this means can be built up to any required thickness, is next removed from the investment, the graphites are drilled out, and with corundum wheels the backing is shaped as seen in Fig. 5. After this has been done the backing should be placed on the porcelain to ascertain if the pins are too long to let backing and porcelain come together; if such is the case, either drill out the backing or cut off the pin ends until backing and porcelain are in perfect contact. Then the pins are headed as shown in Fig. 6. The pin-holes should be undercut with a wheel-bur, making them slightly larger inside than at their orifice.

A very convenient device in the form of pliers for grasping the pins while making the heads is shown in Fig. 7. The pliers are held in a small vise; then, by the use of a flat plugger, which has been discarded from the operating table, and a few light blows with a small hammer as it is passed over the free end of the pins, it is easy to make the heads the required size and shape. They should be thin, flat and of about the size shown in Fig. 6.

The backing and porcelain are now held together with a little soft wax while they are fitted in proper position on the plaster cast or model, after which they are fastened in place with hard wax, the porcelain detached, and the case invested for soldering.

While investing, great care should be taken to fill the pin-holes with the investment material, which for this detail should be made of marble dust and plaster in equal parts.

All the soldering that is necessary in this final process is to join the individual backings or sections to each other or to caps. There should be sufficient gold to make the backing of the necessary thickness run over it in the process above described.

If it is desired to attach the porcelain facings after this

manner in making bicuspid and molar teeth, when gold cusps are required the porcelain and cusp are ground in the usual way, and the backing is made in the manner just described, and after being placed on the porcelain it is fastened in position with hard wax, after which remove the porcelain facing, invest cusps and backing, and join them with solder. The sections are then ready to be placed in position, soldered and finished.

In making the collar crown, the band and cap are made in the usual manner to fit the root; then the facing is ground in position, and backing made as before described. After it is ground in position, they should be waxed to the cap and the porcelain detached; then the backing and cap are invested, soldered and finished as usual.

In constructing the bridge denture, seen in Fig. 9, the crowns and caps should all be made and adjusted in the mouth; then a wax bite and plaster impression are taken, and model obtained. Both side sections are then made, after which they should be adjusted in the mouth, and another plaster impression taken and model obtained on which to build the front section. The four incisors are then made as above described and waxed in position; they should then be removed carefully, invested, first removing the porcelain veneers, and soldered together, separate from the rest of the case. It is then readjusted on the model and the whole case invested, and the sections soldered together at the cuspids. The bridge is then ready for the final finishing.

The incisor facings can be cemented to the backings either before or after the bridge is fastened in position in the mouth, preferable before. The best obtainable slow-setting oxyphosphate cement should be used and mixed to a thick creamy consistency. Fill the pin-holes thoroughly and, for greater security, cover the pins also; place a thin layer over the backing, and press the porcelains firmly and fully into place. Allow the cement to thoroughly harden, and protect all the exposed edges with varnish before dismissing the patient.

As regards the security of veneers thus attached, it may be confidently stated that with a facing secured, as above described, by pins as long as those seen in Fig. 6, and with pin-heads of the size there shown, and made and cemented as directed, any force sufficient to detach the pins will first break the porcelains. Thus cemented, they have stood the actual test of years of wear.

The following cuts will, it is believed, illustrate with sufficient clearness the descriptive text of this paper. By their aid, and a little practice, any dentist possessing ordinary skill in this class of work will have no difficulty in securing good results.

ILLUSTRATIONS.

Fig. 1.



Fig 1 b.



Fig. 2.

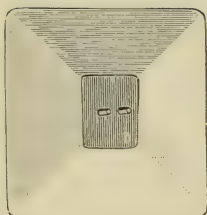


Fig. 3.

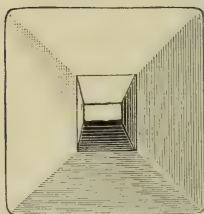


Fig. 4.



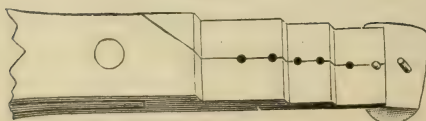
Fig. 5.



Fig. 6.



Fig. 7.



ILLUSTRATIONS.

Fig. 8.

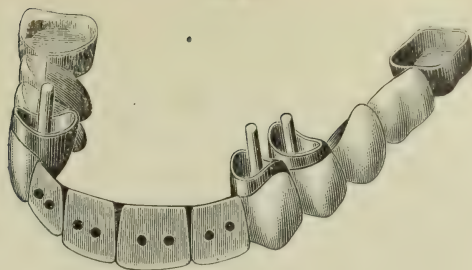
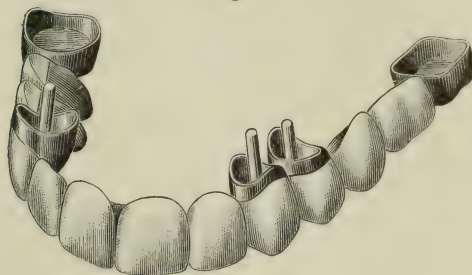


Fig. 9.



DESCRIPTION OF CUTS.

Fig. 1 *a* shows the backing with pin-holes.

Fig. 1 *b* shows the facing to which it has been fitted.

Fig. 2 shows the backing invested, with the graphite points in position.

Fig. 3 shows the backing in position on the investment after being built up with gold.

Fig. 4 is a cross section of the same, showing the graphites still imbedded in the investment.

Fig. 5 shows the backing as completed.

Fig. 6 shows the facing with headed pins.

Fig. 7 shows the pliers used in making pin-heads. They should be of tough steel, and be made very thin at the end which grasps the pin. The hole in the pliers should be a little smaller than the shaft of the pin so that it may be held firmly, and should be placed very near the end of the tool in order not to interfere with the opposite pin when the two are close together.

Fig. 8 shows the bridge denture ready for the attachment of the facings.

Fig. 9 shows the completed denture.

ANOMALOUS TEETH.

*I. Norman Broomell, D.D.S., Philadelphia.**

It has always been conceded that the dental organs of man, as well as those of the lower animals, are susceptible to much variation in form and structural arrangement, and that frequently this variation is so positive that the organ is pronounced as anomalous in character. Just where the line of distinction between the normal and abnormal should be drawn is a subject worthy of some consideration. Some authorities define the word anomaly as a marked deviation from the normal, while, in the opinion of others, a much broader meaning is accorded it; and we find all those conditions which are in themselves an irregularity from the typical structure or occurrence included under this category. Under the first definition a given structure or organ is accorded a wide field for its normal existence, while under the latter but slight deviation is necessary to classify it among the abnormal.

Upon first thought it would appear that the ability or inability of a tissue or organ to perform its special function should, in a measure, decide the question of the nature of its being, and no doubt, to a certain extent, this is true; but while the action of an organ or part of the body may, by ordinary observation, appear entirely satisfactory, it is only so at the expense of other organs or tissues, and these, in the course of time, by this extra exertion, become hypertrophied or in other ways pathological.

While this is especially applicable to those organs or tissues which have a wide range of function, it may with a good deal of force be applied to the dental organs and their immediate environments. Anomalous conditions in the teeth may originate in, or be confined to, one or more of the tooth tissues, in any of which the structural disarrangement may eventually result in the death or degeneracy of the part. Enamel malformation is of such a character that it may be observed upon the surface either in the form of a multiplication of cusps, or by an extra development of the various ridges formed by pronounced folds of this tissue. But probably the most disastrous anomaly of the enamel, and one frequently responsible for the downfall of this tissue, is found in some defect of its structural arrangement other than those just referred to. In some instances the enamel rods of a given district, instead of being normally distributed by assuming

*Professor of Dental Anatomy, Dental Histology and Prosthetic Technics, Pennsylvania College of Dental Surgery.

a direction principally at right angles to the long axis of the tooth crown, are arranged without regard to the base or periphery of the tissue, and we have as a result an anomaly of structural form. The question of normal and abnormal enamel rod distribution now presents itself, because in certain locations, *i. e.*, the summits of the cusps, an arrangement of the rods similar to that referred to is so common that it may be considered a normal condition; while, if a like distribution was found in other locations, the tissue should properly be considered abnormal.

Malformed teeth, in respect to the number and form of the cusps present, is not alone confined to the enamel, but also to the dentine which first records the tooth form on its periphery.

The number of cusps in the cuspidate teeth, particularly the lower molars, is so varied (all of which are accepted as normal, or at least seldom characterized as abnormal) that, unless the conditions most frequently present be recognized as the correct anatomical form, that phase of the subject cannot be considered.

Anomalies in the general contour of the tooth crown is usually confined to the incisors and third molars, both the dentine and enamel contributing to the deformity. Here the defect is usually so pronounced that but little difficulty is experienced in properly classifying the organ. One of the most frequent variations in form met with in these locations is found in the peg-shaped or cone-shaped crown. If it were possible, it would be interesting to trace the development of such a malformation; but with our present knowledge of this process in general, there is little doubt as to its origin, the enamel organ failing to fulfill its early and primary function of molding the tooth crown in the dentine papilla, the responsibility for this resting in the special cells composing it, as well as the so-called stellate reticulum, which I am led to believe exerts a controlling influence over the form of the enamel cap.

While the organic defects of tooth crowns are numerous and varied, those which are confined to the roots are most frequent, in many instances interfering with the function of the organ. When a given peculiarity is confined to this portion of the tooth, it is frequently difficult to discriminate between the normal and abnormal. Certain teeth are recognized as normal when either a single root or two roots are present, and the acceptance of this fact increases the difficulty of a proper classification of its peculiarities. One condition or the other should be considered as within the natural order.

In very rare instances do we find the roots of the cuspidate

teeth not more or less crooked; yet, at the same time, many decidedly crooked roots are considered within the natural law; while, on the other hand, roots with but little more deflection are classed as anomalous.

Marked flexions of roots or crowns, cases of fusion or concrescence, are usually so positive in character that an anomalous condition is at once acknowledged. While tooth anomalies are usually referred to as external, or as belonging to the hard tissues of the organ, a not infrequent location for such disorders is found in the pulp cavity, in some instances the pulp is responsible for the condition, in others it may be attributed to the dentinal tissue. This cavity, normally following the external contour of the tooth, is subject to much variation in outline and capacity, regardless of those changes which are incident to the continuous process of dentinification.

In noting the progress of tooth dissections in college anatomical laboratory work, the writer has on more than one occasion observed a complete division of the pulp chamber; horn-like processes penetrating the dentine in the direction of the occlusal surface in locations where they would be least expected, together with various other unnatural features.

It is seldom that we hear of an unusual number or a peculiar distribution of pulp-canals in an individual tooth root referred to as an anomaly; but the acceptance of certain conditions in this connection, as within the natural law, compels us to recognize the above peculiarities as abnormalities.



ABSTRACTS AND SELECTIONS.

CLINICAL STUDIES OF SOME SUPPURATIVE DISEASES OF THE MAXILLÆ.*

Henry C. Boenning, M.D., Philadelphia.†

From the point of construction the maxillæ are the most important bones of the face, inasmuch as they form a large part of the osseous framework of this part of the skeleton; but their greatest importance is due, of course, to the fact that they contain the teeth, and to their relations to important organs such as the eyes, nose, and mouth. A number of years ago, when my attention was first directed to the diseases of the maxillary bones associated with suppuration, notably alveolar abscess and antral empyema, I observed that while a great number of these cases were being constantly treated at the dispensary, very few of them progressed toward a final successful issue, and still fewer were cured. The suppurative troubles were mostly recurrent, and, though the diseases may have been modified and apparently cured, in a very little while the cases would again appear with a return of the original trouble.

It may be proper for me to say that I owe a great debt of gratitude to the Philadelphia School of Anatomy, which I conducted from 1883 to 1896, inclusive, inasmuch as frequent illustrations of the suppurative diseases of the maxillæ presented themselves on the dissecting table, and I never lost an opportunity to examine every cadaver for specimens in morbid anatomy illustrating alveolar abscess, antral empyema, and other pathological conditions of the maxillæ. I was wonderfully rewarded in my studies on these diseases by finding (especially during the years from 1887 to 1894, while I was most active in this direction) a large number of illustrations in morbid anatomy of alveolar abscess, and quite a series of specimens of antral disease, which I took especial care to study very carefully.

In many of the specimens I secured, and which I still have in my possession, I found that the teeth had received very careful dental treatment, showing in many instances filling material extending well down the pulp-canals. In almost every case of section upon suspected cases of alveolar abscess, and, in many in-

*Read before the Academy of Stomatology, December 27th, 1898.

†Professor of Anatomy and Surgery in the Philadelphia Dental College; Quarantine Physician of Pennsylvania; Surgeon to the Garretson Hospital, etc., etc.

stances, sections of the alveolar structures where no suspicion of alveolar abscess existed, I was rewarded by finding well formed pus cavities, in some of which the morbid appearances were not only interesting, but instructive to the highest degree.

In specimens of alveolar abscess where the lesions were marked there were present, at and near the extremity of the roots of the affected teeth, cavities of greater or less dimensions, filled in some instances with putrid pus, or pus undergoing caseous transformation, with flakes of carious bone, shreds of tissue, inspissated *débris*, and in several instances the apices of the roots were found roughened, eroded—in a word, necrotic. In these appearances, I concluded, lay the reason why, even with careful treatment, alveolar abscess continues indefinitely as a chronic and recurrent disease. The pathological accumulations are retained within the abscess cavity in the substance of the bone, and although (as was shown by the appearance of the teeth in the sections) careful enlargement of the canals of the roots with the conventional treatment of the disease is practiced, the contents of the abscess cavities are of such character, substance, and size that it is physically impossible to force them out of the small openings through the roots.

* * * * *

When nature opens an abscess in any part of the body, of course spontaneously, it results in a prompt cure if the opening is sufficiently large. It occurred to me that it has been the practice of surgery, when desiring to evacuate an acute abscess, and, in fact any accumulation of pus (except such as occurs in the development of a cold abscess), to make a free, bold incision right down to the purulent accumulation, and thus at once discharge not only the pus, but the colonies of developing microorganisms, the infected material and *débris*, any necrotic masses, and everything incidental to the development of a disease of this kind.

I considered, furthermore, that it was the practice of surgery, in the treatment of abscesses associated with the osseous structures, to cut down upon the seat of pus formation within the bone, and then by trephine, or otherwise, make an opening sufficiently large to insure prompt, free, and satisfactory discharge of the contents of such a cavity. I asked myself, why can we not apply the same rule of surgery to the treatment of alveolo-dental abscess? Why shall we temporize with any given case of alveolo-dental abscess, associated probably with a necrotic root, by attempting the discharge of the pus and other contents of the abscess cavity by a minute canal drilled through the root of the tooth,

with little chance or hope of success, and often with the probability, if not assurance, of recurrence? Although alveolar abscess in the great majority of cases is preceded by the death of the pulp, such is not invariably the case, but in these exceptional cases the pulp is by the conventional treatment destroyed, of course.

Following my conviction in this matter, it became my plan to urge a radical treatment of alveolo-dental abscess. Instead of enlarging the pulp-canals and treating the abscess through them, I practiced opening into the abscess through the external alveolar plate. This operation is so very easily performed that it is readily practiced by every dental surgeon. I have found that the most satisfactory plan to follow is, first, anesthetize the part or patient; next, to antisepticize the parts and then raise a periosteal flap from the external alveolar plate; the bone being exposed, put a clean bur of sufficient size in the holder of the surgical engine and drill directly into the alveolar abscess, then completely remove its contents; all of the accumulated *débris* and, if such be the case, the necrotic extremity of the root should be removed. Not that I would ask you to forego treatment through the root-canals whenever alveolar abscess occurs; not at all. In fact, be sure and put the affected tooth in the best possible condition after opening and thoroughly discharging the abscess through the external alveolar plate, but do this first. In alveolo-dental abscess there is not simply a pus formation at the apex of a root and infection of the contiguous structures, but there is at the same time infiltration of pyogenic microörganisms and their products throughout the entire soft structures in the proximity of the abscess cavity.

Basing my opinion upon experience, I think that the most satisfactory treatment of this affection is an external opening into the abscess cavity by means of a bur from one-eighth to one-quarter of an inch in diameter; next, thorough antisepsis of the abscess cavity; then the proper sterilization of the pulp-canals and the filling of the same; and then packing the abscess cavity with iodoform gauze or other dressing, leaving the opening through the external alveolar plate lightly covered by the pendent fold formed by the periosteal flap. This becomes attached, and very soon the wound closes.

* * * * *

Following the thought laid down in the discussion of the treatment of alveolo-dental abscess, it occurred to me years ago that if we desired to cure antral abscess, so called, we must estab-

lish an opening sufficiently large to thoroughly evacuate the antral cavity, to clear out the putrid material, to curette the carious walls of the antrum, to remove all diseased structures and all pathological masses, and completely discharge the contents of the antrum, which I have repeatedly found consisted not only of pus, but of *débris* and necrotic substances of a fibrous and osseous nature. The practice sometimes pursued, which, in fact, I regret to say, is very often pursued—to extract a firm tooth, often a sound tooth, and then perforate the floor of the antrum of Highmore—is reprehensible in the extreme. In fact, it is an unjustifiable proceeding to sacrifice a useful dental organ, and in the great majority of cases to no purpose, for in almost every case that I have seen, where this line of treatment has been followed in the attempt to cure a case of antral empyema, the opening was entirely inadequate to discharge the contents of the diseased cavity and to admit of satisfactory after-treatment. It has been our practice in the treatment of suppurative diseases of the antrum, especially where they have been of long standing, to raise the soft structures from the anterior antral wall, and then by means of a trephine in the surgical engine make an opening in the antrum large enough to insert the end of the index finger. Some time ago an eminent member of your profession was present at my clinic and witnessed the operation of trephining the antral wall. He expressed himself as being amazed at the practice of opening the antrum heroically for antral empyema, but his amazement turned to strong commendation when I took out of that diseased antrum, which had been the subject of treatment for over three years, a nodule of inspissated pus and *débris* which was quite as large as a small marble; and when I dislodged, by the lightest touch, a flake of bone larger than a finger nail, and demonstrated that this flake of bone was not only necrosed, but black as the result of long retention, he publicly stated that what he had witnessed had forever changed his views on the treatment of long continued cases of this kind.

Such facts as these are not as widely known by the dental profession as they should be, but we have established them now in a number of operations, especially within the last three years, and I am to-day prepared to say that it is my belief that the safest and most satisfactory operation for chronic antral abscess is this large anterior opening directly into that cavity, the removal of all pathological masses, the satisfactory irrigation and after-treatment, and, what is invaluable to the patient, no manner of disturbance of the dental arch.

A few suggestions associated with the after-treatment of these cases is of prime importance. In the first place, it is imperatively required to keep the parts antiseptically clean, so as to prevent the accumulation of any discharges or foreign materials. If absolute surgical cleanliness is not observed following this operation, you may have reinfection of the bone and progressive devitalization until a great portion of the maxilla is involved in the process of softening, caries, necrosis and destruction. The antral cavity must be kept carefully packed and everything done to establish asepsis. In from four to six weeks after the operation the cavity is, as a rule, filled, and, with the extreme care we apply in our after-treatment, I do not recall a single failure to cure antral empyema.

In treating cases of recurrent alveolar disease, as well as cases of chronic antral empyema, we shall continue perforation of the bone into the abscess cavity, thereby insuring the cure of the case and the retention of the dental organs in as perfect a condition as the exigencies of the case will allow.

International Dental Journal.

THE SCHOOL DENTIST.

The School Dentists' Society is an association of dental surgeons in England, whose object is to supervise school children's teeth and see that they are not allowed to decay seriously before receiving proper attention. The *British Medical Journal* remarks that the suggestive statistics it has collected and that have been recently made public in the address of its president, amply justify its existence. As the result of investigation by the school committee appointed by the British Dental Association some years ago, it was announced that the teeth of more than eighty-five per cent. of 10,000 school children of the average age of twelve years needed skilled attention because of premature decay. Similar statistics have been obtained as the result of investigation along other lines.

The School Dentists' Society has been calling parents' attention to these conditions, and seems to be arousing parental consciences in the matter. The *British Medical Journal* says that one at least of the large English public schools has taken definite steps toward caring for pupils' teeth. A system has been instituted by which the mouth of every boy is examined at entrance and the actual condition of his teeth charted. A copy of the

chart is sent, with a note from the head master, to the parent or guardian, calling attention to pathologic conditions existing, and asking that they be remedied before the boy returns for the next term. The charts are kept up to date by subsequent examinations, and are filed away for ready reference at any time while the boy is at school. Every Saturday (school holiday) throughout the year a dentist is in attendance to treat such cases as parents desire to have dealt with at school.

This system has been in operation for the past five years, and the masters and parents are eminently pleased with the results. The resident medical man writes emphatically of the good that has accrued to the general health of the children and the greater attention paid to this matter by parents. Not the least of the benefits obtained has been "the fostering in each pupil of the (often too dormant) principle of personal dental hygiene with all its attendant and far-reaching advantages."

As the neglect of the teeth in early years often leads to an immense amount of suffering in later life, this English idea of dental interest in school children seems a most commendable one. The entrance to the *primæ viæ* is important, too, because of its relations to the digestive tract. The application of the best hygienic principles here cannot fail to benefit greatly the general health. Our American dentists are so well known for enterprise that we are a little surprised to find that they are anticipated by our Anglo-Saxon cousins across the water in a matter like this; we know of no effort that is being made in this direction in this country. The idea of taking care of school children's teeth is an excellent one. It is next in line for attention, now that the importance of the school physician has come to be generally recognized, and the prevention of the insidious development of pathologic conditions during early years is looked upon as the best pledge of a generation of healthy adults and a vigorous old age.

Medical News.

SUPPURATIVE PATHOLOGY.

Robert H. M. Dawbarn, M.D.

There is hardly a microbe that is not capable of producing suppuration. Senn gives a list of ten mainly at fault, but any microbe is an irritant. The most common among these ten are, in severe suppuration, the streptococcus pyogenes, and in the milder, the staphylococcus pyogenes, of three kinds—aureus,

albus and citreus. These four cover the great bulk of what we have to deal with. Now, you can tell before you see the patient, if you examine a drop of pus under the microscope, nine times out of ten, whether that patient is suffering misery or not. If I take a drop of the pus, and stain it with methylene-blue, or other chemicals used for this purpose, and examine the little dotlets under the microscope, and find them clustered together in little masses or bunches, those are staphylococci pyogenes, and the patient is probably suffering very little; if, however, I find under the microscope apparently the same little dotlets, but arranged in strips, or bands, or chains, in a row, these are streptococci pyogenes and I can be certain that the patient is having a rise of temperature, is unable to sleep at nights, and in considerable pain. The shorter the chains, the worse the type of the microbe seems to be. A chain of three or four dotlets would thus indicate worse conditions than one of ten or twelve. As to the difference, then, in the severity of the inflammatory processes, they depend upon two factors; first, the kind of microbe causing it by the irritating presence of the chemicals called ptomaines and toxines, produced by its life and death processes; and, second, whether the inflammatory products are in unyielding tissues.

For example, of the five classes of "felons" (paronychia and conditions resembling it), the one that is the most agonizing is the one most deeply placed—*i. e.*, under the periosteum. It is, then, the unyielding, inelastic character of the periosteum of the jaw that makes an immense difference in the amount of suffering when pus forms beneath it.

As to the duration of the inflammatory suppurative processes, that depends upon quite a number of different factors. You all know that one of the modern names for the white blood-cells, which are little cannibals, guerilla warriors, is phagocytes, because they seek to devour the microbes. Wherever the microbes are found, there the white blood-cells accumulate in billions; and these immense cohorts of white cells attack the microbes wherever present, and proceed to devour them. You can see under the microscope the microbes disappearing into the interior of these white cells until they cannot be followed farther, and presumably disintegrate. If the microbes get the upper hand, presently the white cells themselves die and disintegrate. Pus is a collection of such white blood-cells, plus the microbes, plus the "liquor puris," which is simply blood serum. In a case of suppuration, if you have only a few microbes present, it is

quite conceivable that there may be a good deal of misery for a little while. If the microbes get the upper hand, and increase in numbers, then you begin to have a development of pus, and in ninety-nine times out of a hundred there is only one treatment for that pus, and that is to let it out; there is no medicine that will relieve it, and so long as it is left there, it is a steady trouble. If the microbes are present within bone in small numbers, and continue so, they are capable of raising a very slow and chronic form of inflammation, whereas, if they are present in large amounts in the bone, you have quite frequently necrosis—that is, death of bone *en masse*, and promptly. Except in few instances, such as phosphorus necrosis, which is caused by a chemical irritant, in the great majority of cases, necrosis is caused by suppurative microbes, of any one of the numerous, different kinds. Now, if those microbes, instead of being in large amount, are only present in very small amount, and nevertheless the phagocytes cannot succeed in getting at them to destroy them, they may, by their irritating presence, induce a chronic osteitis. Their continued presence in the bone for months or longer is capable of exciting the growth of cells which are called “osteoclasts.” These are a kind of “giant-cell,” and wherever you have a chronic inflammatory process of absorption of bone going on, they are found present, so that bone which was originally compact becomes more porous, and then that porous bone breaks down still further; and always, in these chronic forms, you find these osteoclasts present. After that porous bone becomes still more porous, comparatively large open spaces are formed in it, called the “caverns of Howship.” Actual cavities in the bone, of considerable size, result from continued activity in this line. Often, surrounding such examples of osteoporosis, there will be found a zone of abnormally dense bone—an osteosclerosis. The familiar case of Sir Benjamin Brodie, that famous English surgeon, is illustrative. He had a case once of a woman who came to him in great suffering, and begged him to cut her leg off, saying she could no longer endure the pain. He finally amputated her leg at the knee, and subsequently, upon splitting open the tibia, found in it a chronic abscess—a large, ragged cavity in the bone, filled with pus. Of course, the correct treatment would have been to chisel into the cavity for drainage, and thus save the limb. Such an abscess is called to-day a “Brodie abscess”—caused, as we have seen, by the presence of a few microbes, long continued, and exciting the activity of the osteoclasts.

As to the speedy termination of a long protracted suppurative inflammation, I think I have covered this.

Why does inflammation in the tissues contiguous to the bone sometimes terminate in necrosis, but more frequently does not?

I have also practically covered that point; it is a mere question of the number of microbes and their character, whether they are in unyielding tissue, and whether they are so numerous that they can multiply readily. It is not the microbes themselves that kill the bone; it is the poisons they produce by their activities, and which also result from their death and decomposition.

I have been discussing necrosis. Caries is an absolutely distinct thing, and is almost invariably caused by the activity of the tubercle bacillus; so much so that caries of bone and tuberculosis of bone are now described as one and the same thing. In the matter of dental caries, that seems to be a disease by itself, and you, better than I, are able to determine what the cause of that is. With the exception of dental caries, caries differing from necrosis does not select dense bone; it will select the cancellous tissue of the tarsus and the bodies of the vertebræ.

Speaking of these suppurative microbes, there is one point that will interest you. There is a discussion that has never been settled as to whether the streptococcus of pus, this little microbe which is so extremely irritant, is, or is not, identical with the streptococcus of erysipelas. I have in my desk at home a letter from Professor Prudden, of Columbia University, taking the view that these microbes are identical, the clinical difference being probably that in the case of erysipelas the streptococci spread along the lymphatics, and in the case of suppuration, along the blood-vessels. Professor Welch, of Johns Hopkins University, takes the same view; but there are many pathologists who claim just the reverse—for example, Fehleisen, who thinks they are different microbes. It is one of the points in bacteriology to-day which ought to be cleared up, and in which there is much active work being done.

I need not say, as to local indications, that nothing that you may apply to the outside, upon the skin or where it cannot reach the microbes directly, is going to scare those microbes. Still, in a certain way, but not by directly attacking those microbes, heat and cold have a therapeutic value. Every one knows that with a felon, for example, if treated locally (which it ought not to be, except by the knife), the first thing, usually, is to apply cold, and then subsequently to apply heat as by a poultice. There

is a reason for this, namely, that under cold the amœboid activity of the white blood-cells is very much retarded, and perhaps thus the formation of pus may be prevented. Now, the amœba prima of ordinary ditch water, if studied under the microscope, will move but sluggishly in cold water, but if the water is warm those primitive precursors of white blood-cells are very manifold more active. In other words, white blood-cells under heat can escape with great ease from the blood-vessels; but if you apply cold you check their activity. Therefore, when you have given up the hope of preventing pus, and wish to bring a boil "to a head," you aid this by applying heat. But during the time that the medical man, as distinct from the surgeon, is applying his cold or heat, the ptomaines and toxins from the microbes are poisoning the patient constitutionally, and threaten death locally. Therefore the knife, to give them free exit, is the logical remedy.

As to medicinal means, there is only one prominent medicine for checking amœboid activity, and that is quinine. All works upon therapeutics state that full doses of quinine will gradually diminish the tendency to suppuration. It does not, however, follow that you have helped your patient by preventing a tendency to suppuration, for, as stated heretofore, these accumulated leucocytes (white blood-cells, phagocytes) have power to attack and devour microbes.

Is there any other point now in connection with this subject? I think I have covered those that Dr. Howe asked me to speak on. Dr. Howe, in sending me this request, enclosed a brief history of a case in which there seemed to be a very unusually rapid suppuration. It is a case in which, if I understand it correctly, there was simply a discolored tooth containing a cavity; it had given no trouble whatever; he opened it to treat the discoloration, and simply found perfectly dry detritus. Having removed that, he treated the tooth with electrozone to bleach it and disinfect it, sealed it up, and for about twenty-four hours there was no discomfort; but pain appeared on the second day, and, the cotton being removed, a small flood of pus came out, showing that while there had been no discomfort whatever, the cleaning out of that detritus had, apparently, in some twelve to sixteen hours induced beginning suppuration, the microbes doubtlessly entering with the air. It seems to me likely that that suppurative activity had started pretty promptly after the operation. The electrozone had not been successful in disinfecting down to the bottom, and the suppurative activity had not reached the point at which it annoyed the patient until a number of hours

had gone by. Now, this is a very interesting point, and I discussed it with various surgical friends of mine, none of whom could mention an authentic instance of pus formation in less than twenty-four hours' time after infection. I, myself, have never seen a case in which, although the wound might show every evidence of infection, actual pus appeared within twenty-four hours from the time of inception. I would simply suggest, not as a bleaching agent at all, but as a further antiseptic, the use of the formalin solution, or else, what I like very much in suppurating wounds, campho-phénique, which is nearly equal parts of camphor and carbolic acid (49 camphor, 51 phenol). It is unirritating; even if put on the skin it will not blister, and I think it might be a desirable thing to use in roots of teeth, much more so than electrozone would be.

TOOTHACHE, AND HOW IT WAS TREATED IN 1772.

Walter P. Stewart, D.D.S.

My great-grandfather was a physician of the old school, and I am fortunate in being the possessor of two of his books.

In the front of the first is written in ink, now dim and yellow, "Dr. Joseph Powell, his book, 1772," and on the title page we see the name of the author, "William Buchan, M.D.," and the name of the printer, "John Dunlop, Market St., nearly opposite the London Coffee House, Philadelphia, 1772."

In looking over this old volume, yellow with age, the old-fashioned long s is liable to make us call a "case" a "cafe," and commit like blunders.

After glancing idly over more than half the book, and reading methods of preventing and curing different diseases (and the chief remedy for all things is bleeding), I reach page 249, and see the heading, "Of the toothache." I am all attention, and the following is what I read:

"This disease is so well known that it needs no description. It has great affinity with the rheumatism, and often succeeds pain of the shoulders and other joints.

"It may proceed from various causes, as obstructed perspiration, a catching cold; or from any of the common causes of inflammation. I have often known the toothache occasioned by neglecting some parts of the usual coverings of the head, by sitting with the head bare near an open window, or its being anyhow exposed to a draught of cold air. Food or drink taken

either too hot or too cold, is very hurtful to the teeth. Great quantities of sugar or other sweet-meats are likewise hurtful. Nothing is more destructive to the teeth than cracking nuts, a chewing any kind of hard substances. Picking the teeth with pins, needles, or with anything that may hurt the enamel with which they are covered, does great mischief, as the tooth is sure to be spoilt whenever the air gets into it. Pregnant women are very subject to the toothache, especially during the first three or four months of pregnancy. The prominent or immediate cause of the toothache is a rotten or carious tooth.

"In order to relieve the toothache we must endeavor to draw off or divert the humors from the part affected. This may be done by mild purgatives, bleeding and bathing the feet frequently in warm water. The perspiration ought likewise to be promoted by drinking freely of weak wine whey or other diluting liquors, with small doses of nitre. Vomits, too, have often an exceeding good effect on the toothache. It is seldom safe to administer opiates, or any kind of healing medicines, or even to draw a tooth till proper excavations have been practiced, and these alone will often affect the cure.

"Next to excavations we recommend fomenting the parts with warm water. Bags filled with boiled camomile flowers, flowers of elder, or the like, may be applied to the parts affected, with as great a degree of warmth as the patient can bear, and renewed as they grow cold. The patient may likewise receive the steams of warm water into his mouth through an inverted funnel, or by holding the head over the mouth of a porringer filled with warm water, etc.

"Gargles are likewise of use to make a discharge from the part. Rot of elder dissolved in small tin makes a very proper gargle, or an infusion of sage or mulberry leaves.

"Such things as promote the discharge of saliva, or cause the patient to spit, are always proper. For this purpose, bitter, hot, or pungent vegetables may be chewed, as calamus, aromaticus, etc."

Many other herbs, roots and seeds, etc., are recommended for curing the toothache, as the leaves or roots of milleferl or yarrow chewed, tobacco smoked and chewed, etc. These bitter, hot and six-
doubt-
suppl-
tion. agent things, by occasioning a great flow of saliva, frequently ease in the toothache. Opiates often relieve the toothache. For this purpose a little wet with laudanum may be held between the teeth or a down to of sticking plaster about the bigness of a sixpence, with a the po-

bit of opium in the middle of it, of a size not to prevent the sticking of the other, may be placed on the temporal artery, where the sensation is most sensible. De la Motte affirms that there are few cases wherein this will not give relief. If there be a hollow tooth, a small pill made of equal quantities of camphor and opium put into the hollow is often beneficial. When this cannot be had, the hollow tooth may be filled with gum mastick, wax, lead, or any substance that will stick to it, and keep the external air out.

"Few applications give more relief in the toothache than blistering plasters. These may be applied betwixt the shoulders, but they have the best effect when put behind the ears, and made so large as to cover a part of the lower jaw. Burning the nerve within the affected tooth with a hot iron has frequently given ease, but this operation ought to be done with care. Applying a hot iron to what is called the inner bar of the ear is likewise a noted cure for the toothache. Blistering, however, is more safe than either of these, and is not less efficacious.

"Hoffman says, "When everything else failed, that he had often great success with the following pills: Take of aromatic pill one dram, storax pill half a dram, extract of saffron six grains. Make them into nine pills, of which six or eight are to be taken at bedtime for a dose.'

"After all, when a tooth is carious, it is often impossible to remove the pain without drawing the tooth; and as a spoilt tooth never becomes sound again, it is prudent to draw it soon, lest it should affect the rest. Tooth-drawing, like bleeding, is very much practiced by mechanics as well as persons of the medical profession. The operation, however, is not without danger, and ought always to be done with care. A person unacquainted with the structure of the parts will be in danger of breaking the jaw-bone, or of drawing a sound tooth, instead of a rotten one, etc.

"When a sound tooth has been drawn, if it be replaced immediately, it will grow in again. It is now a common practice to draw a rotten tooth, and put a sound one, taken from the mouth of some other person, in its place. It is likewise an easy matter to fix artificial teeth so neatly as to answer most the purposes of the natural.

"When the toothache returns periodically, and the pain chiefly affects the gums, it may be cured by the bark.

"Some pretend to have found great benefit in the toothache from the application of an artificial magnet to the affected tooth. We shall not attempt to account for its mode of operation; but, if it were found to answer, though only in particular cases, it

certainly deserves a trial, as it is attended with no expense, and cannot do any harm.

"Persons who have returns of the toothache at certain seasons, as spring and autumn, might often prevent it by taking a dose of physic at these times.

"Keeping the teeth clean has no doubt a tendency to prevent the toothache. The best method of doing this is to wash them daily with salt and water, or with cold water alone. All brushing and scraping of the teeth is dangerous, and unless it is performed with great care, must do mischief." *Ohio Journal.*

FADS IN DIETS.

That mysterious goddess, Fashion, seems to rule over eating as well as over apparel, music, the drama, and literature. Styles and schools of cooking come and go, individual fruits and vegetables rise and fall in popularity, and diet reforms are born, wax great, and disappear. How many recall the craze for Vienna bread and Vienna coffee in 1876-7-8? Who remembers the English mutton chop and stewed tripe of the sixties? Yet the former played havoc for a spell with the old-fashioned coffee-pot trade, and the latter brought numerous chop houses into being, which ran their brief career and passed away.

Diet reforms are longer lived than culinary fashions. The graham movement, now nearly a half century old, has not yet lost its hold upon a goodly army, although many of the views of the founder have been discarded by his followers. The average sample of graham flour no longer contains the irritating, lignose-bearing husk, which in former days supplied the dinner wit with a basis for jokes on sawdust and pulverized cigar boxes. Graham bread is nevertheless in general demand, and most hotels and restaurants supply graham "gems," puffs and biscuits.

The "fresh-blood diet," which drew crowds of men and women to the abattoirs twenty years ago, has lost all power of attraction. The practice came to an end when the German microscopists announced that the fluid was an admirable vehicle for disease germs, and that many cases of contagious and infectious diseases could be traced directly to its use.

Nearly all the new diet-reform theories have a more or less scientific basis. One of these is the meat-extract system, which comes from Paris. The meat, which may be any form of flesh or fowl, is cooked by either roasting or boiling to a point at which

all germ life dies. It is then comminuted in a chopping bowl or meat-cutting machine and squeezed in a powerful press. The high pressure brings out all the natural juices and two-thirds of the carnin, albumen, and animal jellies. It forms a red fluid of moderate viscosity, and a very rich savor of the mess from which it is extracted. It digests even more rapidly than beef extract, but less so than the peptones and sarcopeptones in the market.

A variation of this system consists in the substitution of raw for cooked meat. The extract is darker and heavier, which according to its advocates, makes it more nourishing. On the other hand, the flavor is not so agreeable nor is it as safe from bacilli and other minute life forms as the extract of the cooked tissues.

In both schools the meat pomace which remains after the pressing is supposed to be thrown away, but Parisian savants say that it is made up into croquettes, game pates, and other delicacies for second and third-class restaurants. Both systems have received the approval of the medical men at home and abroad, and, what is of equal importance from a commercial point of view, they have not excited antagonism from any other interest.

The very opposite of this theory is the corner-stone of the Salisbury system, which enjoys a certain vogue in this country and Great Britain. The meat, preferably beef, is reduced to a threadlike structure, washed in water, compressed into convenient sized cakes, and broiled, roasted or steamed. Chemically the dish is pure fibrin, in the best possible form for the stomach to act upon. The flavor is not unpleasant, but it does not possess enough character or intensity to be called attractive.

This principle of slicing tissues into threads has become very popular of late years, and may be regarded as a fad. Wheat is treated in this manner, and also corn, rye, and barley. Vermicelli has largely replaced macaroni, and the cord or ribbon noodle has driven out the larger and thicker varieties in the German kitchens. The difference, as shown by the cooking laboratories, is very much in favor of the new practice. Half an ounce of boiled macaroni requires nearly two hours to dissolve when digested artificially, while the same weight cut into threads or thin wafers requires only forty-five minutes.

Of the new fads, the one which has aroused the greatest interest in what is jocularly known as the Simian diet school, monkey-feeding and arboreal-banqueting. While the credit of the theory is ascribed to two American doctors in London, and also

to a fashionable sanitarium in Michigan, it really belongs to a group of English zoologists of whom the late Frank Buckland was the leading member. It is a practical corollary of Darwinism. Though the genus *homo* has become differentiated from his apish ancestor, yet the differentiation has not been as great as is commonly believed. The teeth, which throw the best light upon an animal's natural diet, indicate that man has a natural tendency to about the same class of food articles as his quadrumanous forbears.

Up to this point there is no difference among what may be called the Simian schools. They all agree that a model diet should consist of fruits, berries, nuts, dried fruits, eggs, small birds, and small fishes. They also agree in discountenancing the excessive use of animal food and of the tubers or "esculents which grow in the dark." Here the unanimity ends and Dame Discord has full sway. The London school recommends all the articles mentioned, and also lizards, turtles, snakes, barks, and many vegetable shoots which are not used by civilized society. One of their stock arguments is that if a monkey escapes in a market he will go, not to a banana stand, but to the fish counter, and seize any small fish he can lay his paws upon.

In the tropics the monkey, they emphasize, will leave anything and everything to catch and eat a live lizard, and will go to almost any lengths to steal a fish from an aquarium globe. This little animal takes delight in robbing birds' nests, and sucks eggs with even more skill and grace than an expert country boy. The English school has a restaurant in London just off Ludgate Hill. On the bill of fare may be found such delicacies as broiled sardines with walnut bread, whitebait with almond-flour biscuit, Barcelona nut salad with caviare and pigeons' egg omelet, and nuts, raisins, milk, and cheese of every sort.

The Simian School of Michigan tends very closely to strict vegetarianism. They grind nuts into various flours and meals, make combination foods of nut meal and dried fruits, issue receipts in which the chief ingredients are nut meals or flours, fruits, fresh and dried, honey, sugar, milk, cream, butter, cheese, and buttermilk. Most of the followers object to meat as a food, but tolerate it when employed medicinally.

The third school started in Berlin, and is marked by using the raw flesh of fish and of small birds. In the former detail they follow the example of the Japanese, who use flaked fish meat in numerous forms. This school has already exercised some influence upon the average bill of fare, marked chiefly by

a larger use of nut preparations. Among the new dishes of the last year which may be placed in this category are walnut and hickorynut cakes, chopped walnut and celery salad, which was first produced by the New York Association of Teachers of Cookery. The list is extended with grated brazil-nuts for the basis of curries, mixtures of boiled chestnuts, raisins, fruits, and spices for stuffing poultry, whipped almond cream, and roasted and crushed peanuts to add to the consommé.

The fruit-cure, which some claim started in Germany, while it is held by others that it originated in Dansville, N. Y., still holds its sway, but not to so large an extent as formerly. It has broken up at many points into sub-schools, such as the grape-cure, the apple-cure, the peach-cure, the orange-cure, the banana-cure, and funniest of all, the watermelon-cure. While the system has not done the good claimed for it, it certainly has done little or no harm. Even the strange watermelon-cure has its useful side. It cools the system, acts as a mild febrifuge, and washes out the tissues in a manner that will please the most rabid hydropath. It has been of benefit in dispelling the ancient prejudice against fruit in the sick-room, and the medical superstition that the vegetable compounds, such as citric acid and malic acid, were of the same nature as the inorganic acids, and therefore equally injurious to health. Physiological chemistry demonstrated without trouble that most of these fruit acids were food substances, and when broken up in digestion served as a simple and efficient fuel in the human circulation.

To Dr. Mathieu Williams, the English chemist, is due the present fad for all sorts of malt preparations. Before his lectures on culinary chemistry appeared there was no demand for malt as a food and almost none for it as a medicine. The high praise he gave that product aroused attention and created a demand which has grown like the proverbial bay tree. To the various malt preparations there is now no limit. Several hundred are quoted in the prices current, and they are used as a medicine, a tonic, a strengthener and a food.

The diet reforms or fads mentioned are based, it will be noticed, upon physiologic and culinary chemistry, and also upon zoologic science. In this they are altogether different from former systems, which were founded upon sentimental, superstitious, or religious considerations.

Paris Daily Messenger.

NECROSIS *vs.* CARIES.*Robert H. M. Dawbarn, M.D.*

In the former, we will say, a child has been playing in the snow for a number of hours; he returns, and goes to bed at night in the usual condition, but wakes up in the night in great agony. The pain is generally in the shin; that is the most frequent seat of acute necrosis, somewhere near the knee. The agony may be so severe that the child is delirious, and he may hence even be unable to point out where the pain is. There have been all sorts of absurd diagnoses made in such cases. If nothing is done in the way of relief, the patient dies, or else in a few days pus appears at the surface, and one or a number of fistulæ form, which are technically called cloacæ, and which continue to discharge pus indefinitely. They lead down to dead bone, which is called a sequestrum. In about three months the sequestrum becomes loose, so that it can be detached from the living bone. This loosening is probably accomplished by the carbonic acid of the blood in its nascent form, *i. e.*, just at the moment it is created, which has a certain degree of solvent power upon dead bone.

As to the treatment of the kind of acute osteitis I have been discussing—a kind which causes necrosis—if seen early, the knife and chisel will do wonders. No other treatment is worth discussing.

If you have made a mistake in diagnosis, your patient will not die from your chiseling into the bone; and if you have not made a mistake, you will have saved the patient either months of suffering, or even his life.

If, however, the case is seen late, and cloacæ have formed, the surgeon waits until the sequestrum separates, when he removes it by operation, and the remaining bone cavity may be treated in any of the modern ways.

Now a typical picture of caries. This is molecular death of bone, not *en masse*. In contrast with necrosis, a typical case of caries is extremely chronic. Assuming it to be in the tarsus, the child will limp a little; the foot will be somewhat swollen, as a rule; not red, but white. A common name is "white swelling." It will be worse when the patient's stomach is upset; it will be "barometric," *i. e.*, worse in bad weather. It will be at first more uncomfortable after rest; later, after exercise. Presently a point of redness will appear, and there will be a breaking down of the skin and exit of pus. If you were to run a probe into the fistula thus formed, you would probably be able to stick the end of it

into soft bone; and the pus is often cheesy, occasionally gritty from bone particles; and sometimes the probe, if left in for a while, will actually be discolored by sulphuretted hydrogen. The late Dr. Detmold used to say, apropos of these fistulæ, that anybody ought to be able to make a proper diagnosis in such a case without running in a probe or otherwise irritating it. The flabby, large granulations at its margin, the fact that a cold abscess is almost invariably tubercular (carious), and communicates with either a neighboring diseased bone or joint, suffices for an accurate diagnosis.

The proper treatment is constitutional and local. The former includes cod-liver oil, milk, fresh air and sunshine, mainly. The latter either ignores the local trouble—simply protecting the sore from trauma—or else is as radical as possible, and removes every bit of the disease, scraping and gouging away the softened bone, and even cauterizing in addition. Iodoform is of great value in treating tubercular bone troubles. Sterilized iodoform suspended in sterilized glycerine will often aid in curing them. Clinically there are two distinct types of caries at the two extremes of age, viz., caries suppurativa and caries sicca. I have repeatedly seen on the soles of the feet of old people, or on the hands, chronic ulcers producing hardly any pus, but instead a bed of chronic granulation tissue, which, when scraped away, exposes the carious bone from which it springs. This is the so-called dry caries (*sicca*). The freely suppurating type—the kind causing much pus (suppuration)—we find mainly in the young. Psoas abscess is an instance of this—an accumulation of pus and granular detritus caused by carious activity in the bodies of the *vertebræ*.
International.

SUGGESTIONS IN BRIDGE-WORK.

THE BACKING.

The porcelain is first ground to fit the gum or cap, whichever will be required. If the bite is at all close the porcelain may be ground from the pins, gradually out to the cutting edge, bringing it almost to a knife edge at the point. When this is done, and the surface of the porcelain carefully cleaned with alcohol to remove all wax, commence the backing with a piece of twenty-four karat gold, about thirty-six gauge. With this thin pure gold a perfect adaptation is very easily secured, if it be annealed several times during the process of fitting. If the porcelain has been ground to fit a cap, as in making a Richmond

crown, the backing should extend over the entire surface, from cervical edge to cutting edge. This is done to allow the solder to flow between the cap and backing, forming a perfect joint. The backing should be allowed to extend a little over at right angles, but it must not be bent down or lapped over the labial side. Supposing the backing to be fitted as desired, carefully remove it from the tooth, and place it on charcoal or an asbestos block and flow twenty-two karat solder over the entire surface, from the pins to the cutting edge. Flow this on as thick as it will be required when the work is finished. It may at intervals be placed on the tooth to see how thick the bite will allow it. If this has been done well, the work of soldering is nearly half finished, and the tooth has not been heated at all. Next mix up a little thin cement, spread it on the backing, place it on the tooth, and press it down hard, squeezing out all the surplus. Spread the pins to hold the backing on, and the tooth is now ready to be waxed in place on the model. If it be a bridge, be careful that the porcelains do not come into absolute contact; have a little space between each one.

THE INVESTMENT.

Invest in asbestos, pumice stone and plaster. Bring the investment well over the cutting edges of the backing and teeth, for it will be remembered that all the soldering that will be needed for that part of the work has been done before the backing was fastened on. This is very important, for it absolutely prevents any possibility of borax reaching the cutting edges of the porcelain facings, where they are thin and likely to break, and also prevents these delicate parts becoming exposed to an accidental blast from the blowpipe. After the investment has set, remove the wax, and fill carefully all the little space between the backings with investment material, to prevent the borax reaching the porcelain from this direction. Cement answers the purpose just as well for this last, if it be allowed to set hard before commencing to solder. If these directions have been followed, the piece is safe from borax and from the danger of the solder getting in between the backing and the porcelain.

HEATING UP.

The piece is now ready for heating. For this purpose nothing is better than a Bunsen burner and charcoal. Use the burner with the ordinary spider on it. Next get a piece of stove-pipe about twelve inches long and six inches in diameter. With a heavy pair of plate shears cut down from one end, about four

inches, at intervals of an inch and a half. Turn these flaps back at an angle of about forty-five degrees. Cut a few notches in the bottom end to admit air, and set this over the Bunsen burner. Fill this receptacle with charcoal, light the burner, and place the investment on it. In about fifteen minutes the work will be hot enough to flow eighteen karat solder without the aid of a blow-pipe. It will be remembered that all the soldering now needed will be to unite the parts together, as the strength of the work has been made before the backing was fastened on the porcelain.

H. H. Johnson, in Items.

LOCAL ANESTHESIA FOR TOOTH-EXTRACTION.

I presume it is now very generally the practice among dentists in extracting teeth to inject the gingival area surrounding the tooth to be extracted with some form of local anesthetic. With a proper agent, perfect benumbing of the gum at least can be secured. How much the nerve-filaments leading to the roots of the tooth are affected is conjecture, but there is often no pain experienced in removing the tooth; so the anesthetic effect must extend to these nerve-tendrils.

The great number of painless extractions that are noted by all who make the effort in this direction should stimulate the general adoption of the plan (unless some better plan is followed), as there is no operation of a minor character so generally dreaded.

The adoption of a safe and efficient agent is the primary point to consider. The use of cocaine has been almost the sole dependence since its introduction. Either disguised under a high-sounding patent medicine, or combined with other drugs to counteract its toxic effect, or in various per cent. aqueous solutions. The latter I think the form most generally in use by the profession. That cocaine possesses certain decidedly toxic principles is a fact generally noted. Its effect in many instances producing such marked lethal symptoms as to become alarming.

I have found a substitute for cocaine that, so far, has proven eminently satisfactory. I refer to eucaine-*B*, or beta-eucaine, as its manufacturers have recently named it, to distinguish it from eucaine-*A*, or alpha-eucaine. The reports from hospital surgeons and dentists, as exhibited in the journals, were so favorable to this drug that I decided to give it a trial, and I can say that, after using about twelve ounces of a five per cent. aqueous solution during the past twelve months, I have not one single case of

toxicity to report, not a case of the slightest nausea or of injury to the gum tissue. Two to five per cent. solutions are recommended, and the limit to the quantity that can safely be injected has apparently never been reached. I use it freely; from one-half to two or three syringefuls at one operation. Much more than this, however, I would not inject until after more extended experience.

In a report made to the Paris Academy of Medicine by Professor Reclus last March, he contrasts the relative value of eucaine-*B* and cocaine as therapeutic agents. First: "The solutions of eucaine-*B* can be boiled without undergoing decomposition, thus permitting it to be sterilized by heat." Second: "Eucaine-*B* is much less toxic than cocaine. All experimenters have come to this conclusion: The toxicity of eucaine-*B*, as compared with that of cocaine, is about as 1 to 3.75." He advises the use of a two per cent. solution, and recommends its use always in preference to cocaine in dental operations. To sterilize I place the bottle containing the solution in a pan of water and bring it up to the boiling point; this prevents breaking the bottle. Eucaine is a vaso-dilator, the hyperemia of the tissues causing much more hemorrhage than cocaine; this will be perceptible at once, but is not sufficient to do harm in its use for extracting teeth. I would be glad to have the experience of others who have been using this, to me, very valuable drug. *Texas Dental Journal.*

PAIN AFTER EXTRACTING TEETH.

Mudr. Arthur Scheuer.

The English and American dental journals make frequent mention of the pains after extractions, and many suggestions are made and remedies given for removing them.

Ellis Canning, in the *Dental Cosmos*, 1892, recommends rinsing of the alveolus with a hot carbolic acid solution, 15:100, and according to the *Western Dental Journal*, 1894, amyl nitrite and nitro-glycerine ought to be in every operating room, the first for inhaling, the latter to be given internally, a drop of one per cent. solution in a glass of water. Dr. Genese, in *Items of Interest*, 1893, recommends the use of a preparation of one part chloroform with three parts pyrethrum tincture. Dr. Chupein, in *Dental Office and Laboratory*, recommends cotton pellets dipped into aconite and chloroform into the socket.

For about five years I have, after every extraction with sub-

sequent pains, wiped the alveolus with concentrated carbolic acid. For this purpose I wrap around the dental tweezers, after curving them at the point, a little cotton, dip it into carbolic acid carb., and thoroughly wipe every part of the socket. Success is almost always certain, even after hours of pain; the latter ceases suddenly, and this experience I have often had with patients. Care must, of course, be taken not to touch any part of the face, and have the patient rinse immediately after the application. If the exterior part of the mouth has been touched accidentally, it should be washed with water.

Items of Interest.

BEST ANESTHETIC FOR INFILTRATION.

Heinze and Braun have been making a thorough comparative study of the various local anesthetics, their concentrations and combinations, personally testing each by injecting it into their arms, not subcutaneously, but endermically, as Schleich recommends. They find that an 8 per cent. concentration of salt solution with distilled water, that is, isotonic with the cell fluids, does not cause pain during an injection and does not affect the sensibility; also that a certain proportion of salt prevents the formation of blisters. They conclude by announcing that cocaine is the most effective of all local anesthetics, but as eucaïne B. equals it in respect to paralyzing the nerves and the absence of irritation, with the additional advantage that it can be boiled again and again without injury, they, therefore, recommend the following formula as the best under all circumstances for infiltration anesthesia: eucaïn B., 1 gm.; cooking salt, .8 gm.; water, 100 gm. The *Cbl. f. Chir.* considers their statements convincing, and that they deserve general attention.

Virchow's Archiv, cliii, p. 466.

METHOD OF PULP EXTIRPATION AT ONE SITTING.

W. T. McLean, M.D., D.D.S., Cincinnati.

Take, for instance, a molar tooth with exposed pulp. The tooth having rubber-dam applied and entirely isolated from adjoining teeth, they being protected by a rope of absorbent cotton applied around the tooth being operated upon. Caries removed sufficiently to permit of direct access to the exposed pulp. The chloride of ethyl spray is now used, preceded by a few crystals

of eucaine moistened and gently laid upon the exposed pulp, covered with a small pellet of cotton, after which there is placed upon the cotton a piece of spunk, nicely fitted, so as to exclude the spray upon its being first applied; for, if it were permitted to come in direct contact with the pulp, it would cause severe pain and shock. After being thus protected, the spray is now directed upon the spunk, and in one or two minutes it is gently removed, and the spray permitted to play upon the cotton. The eucaine crystals, by this time, have dissolved sufficiently to anesthetize the pulp superficially, and the cotton can now be removed and the spray permitted to come in direct contact with the pulp. The flexible, yet rigid, broach (unbreakable) is now used to remove the hard pulp, and it is dug out in a few minutes, not exceeding fifteen. When the pulp is entirely removed, the tooth is permitted to remain open five or ten minutes; then hot air is injected into the pulp-canal, wiped out with oil of cassia, filled with cotton, and hermetically sealed with cement; patient dismissed, and invited to return for permanent filling in 48 hours. The permanent filling of canals and tooth is subject to the desire and individual selection of the dentist.

AMALGAM FILLINGS WITH CEMENT LININGS.

Dr. G. L. Ambrose, El Dorado, Kan.

I care not how small the cavity, it will be better by having a cement lining, and the larger the cavity, the more the need of having the main bulk of the filling cement. In this connection I will say that the dryness of the cavity is an important consideration. Cleansing the cavity with peroxide of hydrogen and alcohol puts it in good condition to receive the cement.

Very frequently bicuspid are so badly decayed as to leave almost a shell. If the person could afford gold, it would be quite doubtful, if you charged what it was worth, if your patient would get value received. Such cavities I would fill almost to the edge with cement, and then burnish over it amalgam while hardening; amalgam entirely covering the cement, of course. If the amalgam veneer is no thicker than thin cardboard, and burnished well into the cement, it will preserve the tooth longer than gold or an all-amalgam filling.

With the cavity dry and cleansed as indicated, the cement clings to the frail walls, and adds materially to their strength. The amalgam and cement form a strong union, and seldom will

it break away from the cement. You will not have to have so much undercut—thereby saving tooth-substance and the patient less pain. Teeth so operated on will show less discoloration, will be stronger, and are less affected by chemical changes. The tubuli of the dentine are better sealed.

The teeth I particularly refer to are the teeth usually filled with amalgam. But at any place in the mouth you can safely promise less discoloration and better results, especially with teeth with frail walls and much tooth-substance gone.

Western Journal.

ABSORPTION OF MEDICINES IN THE STOMACH.

Professor Moritz has been studying this subject with sodium salicylate, potassium iodide and pulverized charcoal administered before, during and after meals, investigating the results with the stomach pump. They confirm the results already empirically established, although he was surprised at the rapidity with which water and any much diluted medicine passes out of the fasting stomach. A medicine given with milk, soup, wine, oil, etc., leaves the stomach much less rapidly; still slower if taken with the meals, and so slowly after a meal that in case of hepatic colic, etc., occurring after a meal, morphine should be administered subcutaneously or per rectum. Fluids like soup, milk, oil, etc., cause a secretion of gastric juice, and the motor function of the stomach is proportionately less as the secreting function is active. He confirms the benefits of a mucilaginous vehicle in protecting not only the stomach but the intestines from irritation, recommending that digitalis be thus administered, and mentions as progress Sahli's "glutoid capsules" made of gelatine hardened formaldehyde; practically insoluble in the gastric juice, but readily dissolved by the pancreatic secretions.

Munich Méd. Woch.

ARTIFICIAL DENTURES.

Dr. J. M. Smith, Eurcka, Kan.

The first part is that of the impression, a part in which very many dentists fail by not realizing the importance of a perfect impression, and rather than try it over, they will say "I guess this will do." In all my early practice I used plaster exclusively. I soon found that the plaster pressed out too much at the back of

the cup and was very annoying to the patient, as well as causing me trouble. I then formed a thin piece of wax across the back of the cup; sometimes placing the cup in the mouth and pressing up enough to get the shape of the palate. This helps somewhat to force the plaster up on the sides, and gives a better impression than without the wax. In pressing the cup to place, I am careful to keep the lip free and relaxed.

If the alveolar ridge is prominent, I usually take an impression first with wax, so as to have a cup deep enough and the right shape. I then trim off the excess of wax, cover the surface of the impression with thin plaster, and replace it in the mouth. By this means you avoid the excess of plaster. In lower impressions, I always use this plan when I use plaster at all. I now use modeling compound about as much as plaster, and have very good results. If you are careful enough to press it up straight, not allowing it to tip or go up one side at a time, and leave it long enough to get quite firm, then, with proper care in removing, you will have a good impression. I sometimes try the plan suggested by someone in one of our dental journals not long ago, of warming the surface of the impression and putting it back in the mouth.

One advantage of using wax first and then plaster is the facility with which you can remove it from your cast.

Next comes "the bite," the most difficult part of the whole operation for me. In my practice of over thirty years I have tried about every plan I ever heard of, and still I am seeking a better plan—results are still too uncertain. I am now using a flat piece of tin, about as wide as an impression-cup, with a handle and a narrow rim on each side. I place a sufficient quantity of modeling compound on each side, place in the mouth, and have them close the jaw until I tell them to stop, cautioning them meantime not to try to fix their jaw. I study the position of the jaws, and then, after the wax or compound is removed from the antagonist, I use my judgment as to whether it is right or not. As to the style of teeth, I use plain teeth, because I can put each tooth just where I want it, while with gum teeth I cannot. If the lower teeth are prominent, I use what are called bow-faced teeth; make the gum a little concave rather than convex, then the lip will draw down to the teeth, rather than fly up over the gum. Our manufacturers do not make half enough of the bow-faced, long-bite teeth. As to the shades of teeth, I find in my practice that the shades Nos. 2 and 3, White's samples, will suit at least two-thirds of the cases; and for matching the natural teeth, No. 12 will suit a large majority of the cases.

ANESTHETICS IN SCANDINAVIAN COUNTRIES.

The report presented at the Northern Surgical Congress, held at Helsingfors in August, embraced 25,305 anesthetics with chloroform, resulting in 15 deaths, asphyxia in 303 cases, and vomiting in 1,789. With ether, 2,926, no deaths; asphyxia in 25; vomiting in 309. With chloroform and ether in 3,616 anesthetics there were no deaths, but asphyxia in 82, and vomiting in 464. With 794 with ethyl bromide, there were no deaths; asphyxia in 3 and vomiting in 39. The secondary effects noted were: with chloroform 18 cases of death; 54 of heart failure; 46 of pulmonary troubles; 153 of albuminuria; 49 of somnolency; 20 of icterus; and 4,338 of vomiting. With ether: 3 deaths; 4 cases of heart failure; 28 pulmonary troubles; 46 albuminuria; no icterus; 585 vomiting. With chloroform-ether: 8 deaths; 13 cases of heart failure; 13 pulmonary troubles; 17 albuminuria; 10 somnolency; 1 icterus; 731 vomiting. No secondary effects were observed with ethyl bromide, except vomiting in 7 cases. The total number of all kinds of anesthesia reported was for the last three years, 32,641. The mortality was, therefore: with chloroform, 1 death in 1,687 anesthesia, and 1 death in 1,406 from the after-effects. No deaths from the other narcotics directly, but indirectly 1 in 975 with ether; 1 in 452 with chloroform-ether, and none directly or indirectly from the 794 anesthetics with ethyl bromide. The anesthetics are classified and discussed with much detail in the volume of the *Nordiskt Med. Ark.* devoted to the Congress.

Jour. Amer. Med. Ass.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

SALUTATORY.

The thoroughly practical character of the DENTAL BRIEF and the earnest desire to instruct, improve and uplift, which has been the inspiration of its editorial pages, has made it a welcome monthly visitor to thousands of readers. Of all these not one but will follow the retiring editor, Dr. Welch, with kindly and grateful thoughts to the well earned repose he craves; not one but will give a heartfelt echo to his parting "God bless you!"

In taking up the burden he thus lays down it is with the purpose to continue the BRIEF upon the same practical lines which have hitherto characterized its management. As far as practicable the journal will strive to justify its title by furnishing each month, freed from all unnecessary verbiage, terse descriptions of devices and process in operative and prosthetic dentistry, as well as concise illustrations of principles and practice in dental and oral surgery, pathology and therapeutics.

Careful digests will be made of all important practical points presented in the papers and discussions of dental societies, and of all contributions to dental, medical and other scientific literature which can have value or significance for the dental practitioner.

If a dental journal is to be not only a practical guide and helper, but an educational force, its irradiation must be not that of the search-light, zoned in a rigid specialism, but rather as the ampler radiance of the sun, revealing special truth in its real relations to the larger sphere of general law.

Dentistry is to-day confronted with vital issues, educational, legislative and ethical; to the discussion of these and all other questions affecting its well being will be brought an earnest purpose to promote the highest professional good, and always an untrammelled pen.

Wilbur F. Litch.

THE DIPLOMA TRAFFIC.

European advices indicate that dental and other diplomas are still a purchasable commodity. Of the establishments where these goods are delivered for cash, and no questions asked, and which, by means of circulars and other trade agencies, are pushing business at home and abroad, Chicago, according to Dr. Richter, contains eight, the city of Milwaukee three, Philadelphia one, Boston one, and the capital of Florida one. Dr. Richter further states that these institutions have issued between three and four hundred diplomas in Europe, and that he is "able to name within the boundaries of Germany almost one hundred persons who have either secretly or more or less openly bought diplomas, and proclaimed themselves in their advertisements to be 'American dentists.'"

The home market certainly does not offer nearly so fine a field as this for this special American industry; indeed, it is to be feared that, owing to restrictive legislation and the invidious distinctions set up by Examining Boards, the trade must continue to rely chiefly upon foreign sales and that "open door" which is the shibboleth of modern commercial enterprise.

The States of Illinois and Wisconsin, however, have this bad preëminence that they are the two States in the Union where the diploma traffic is "wide open," and where the law practically allows degrees of all kinds to be sold regardless of the qualifications of their recipients.

As the foreign purchaser of a dental degree, who is thus enabled to flaunt the title of "American Dentist," is usually as incompetent as he is unscrupulous, those to whom the title legitimately belongs, both by right of birth and of a degree obtained by years of study, are sufferers, not simply in loss of practice, but also, and chiefly, in loss of prestige. Indeed, the name of American Dentist, instead of being an assurance of professional excellence, is fast becoming a badge of reproach—a title to be shunned rather than sought.

At a recent meeting of the American Dental Society of Europe, reported in the March number of the *Dental Cosmos*,

this sentiment received very full expression; the situation was fully discussed, and the following resolutions adopted:

WHEREAS, During the last years the great majority of the graduates of American colleges of highest repute practicing in Europe have been treated by European government officials as if possessing one of the worthless parchments bought and sold in the States of Illinois or Wisconsin, both of which States, through the laxity of their incorporation laws, have severally damaged and almost ruined the reputation of the American graduates abroad; be it

Resolved, That the American Association of Dental Faculties should be requested to apply to the Government of the United States for aid and protection herein, by (1) asking the Government to furnish, through their representatives to the European courts, a list of all those colleges whose diplomas are recognized in America as proof of proficiency beyond reproach. (2) That the Association of Faculties shall appoint in each country of Europe one or two representatives, which being those officially recommended by the United States Government to aid the ambassadors of the United States in the execution of this resolution to inform the foreign governments regarding the reputability of American diplomas preferred for recognition. (3) To enter into correspondence with the members of the Senate and Assembly of the States of Illinois and Wisconsin, asking their collaboration in suppressing the infamous diploma swindle carried on in those States, and asking their aid in canceling all diplomas so unlawfully issued.

Elsewhere in this issue will be found the address of the Foreign Relations Committee of the National Association of Dental Faculties to American Dentists Practicing in Europe, of which Dr. W. C. Barrett is Chairman. The coöperative effort thus inaugurated, if vigorously prosecuted, cannot fail to destroy in all civilized countries this conscienceless traffic in fraudulent degrees.

Dr. Barrett has displayed his usual energy on behalf of any cause in which his abilities are enlisted, and by correspondence with the Governor of the State of Illinois and with the executive officers of all reputable educational institutions in the State—much of which correspondence is reproduced in the March number of the *International Dental Journal*—has sought to awake interest in the subject.

The report printed upon another page, under the caption "War on 'Fake' Diploma Mills," gives assurance that his efforts have not been in vain, and that the educators of Illinois are at

last aroused to the necessity for concerted action not only on behalf of the imperiled educational interests, but of the fair fame of their State.

COSTS IN MALPRACTICE SUITS.

A bill recently introduced into the Pennsylvania Legislature is of great interest owing to the increasing frequency with which what are essentially blackmail malpractice suits are brought against physicians, surgeons and dentists, subjecting them to great annoyance and loss, and generally leaving them without redress in law, even when the causeless or malicious character of the prosecution is fully proven.

By the terms of the act referred to provision is made to secure to the defendant, in case of acquittal, some portion at least of the cost of his defence; and it is to be hoped that a law so manifestly just will be promptly enacted, not only in Pennsylvania, but in other States. The act reads as follows:

"An Act Relating to Costs in Suits against Physicians, Surgeons, Dentists, for Malpractice.

"Section 1. Be it enacted, by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and is hereby enacted by the authority of the same, That in all suits which shall hereafter be brought to any court of this Commonwealth against any practitioner lawfully practicing medicine, dentistry, surgery or obstetrics, to recover damage for malpractice, the person bringing such suit, before being entitled to proceed, shall first file with the prothonotary of the court in which the suit is brought a bond, with one or more sufficient sureties, to be justified before the prothonotary, or, if the exceptions are filed to his justification, then or within twenty-four hours after the defendant has appeared by the court or any of the judges thereof in which said suit is brought, and said bond shall be in such sum as will cover the payment of all costs, which shall include, in addition to those now recoverable by law, an item in the sum of one percentum of the damage claimed by the plaintiff in said suit, the amount of such item to be paid to the defendant, provided a final judgment be rendered in said action in favor of the defendant."

POISONING BY ANTIPYRETICS.

These agents, of which antipyrine, antifebrine (acetanilid) and phenacetine are the leading representatives, can be and are so frequently taken without obvious harmful results, and often with apparent benefit, that they are generally regarded by the

laity as harmless remedies, and in cases of headache, neuralgia, phlegmonous inflammations, influenza and grippe are taken almost as freely and indiscriminately as is quinine for "malaria" in its popularly accepted protean forms.

In a case recently reported to the writer, the patient, a woman of mature years, suffering intensely from acute peridental inflammation, took, at intervals of several hours, three five-grain powders of antipyrine. Some time after the third dose she was found upon the floor, where she had fallen unconscious, completely cyanosed and in a state of utter collapse, from which she was with difficulty resuscitated by the administration of stimulants, hypodermically at first, and later by the mouth, aided by hot water and sinapisms applied to the body and extremities as revulsants. Incidentally it may be mentioned that while the patient survived, the toothache succumbed to this somewhat heroic "family remedy."

Dr. Keller, in a recent number of the *Philadelphia Medical Journal* (February 4th, 1899), reports a case in which acetanilid, "as much as could be placed upon a dime," was administered by a mother to her child, a boy three years of age, "because he complained of a headache." The results were similar in kind to those above recorded. The face was found dusky; the lips, tongue and mouth dark blue; skin cold; respiration accelerated; pulse 140, small and soft. Under hypodermic injections of strychnin; hot water and whisky by the mouth, and large rectal injections of hot salt water, for general stimulation and to favor elimination, the child recovered.

Last year in London a young man died from taking an indeterminate quantity of antifebrine for headache (*British Medical Journal*).

The rationale of the physiological effects of this class of agents is still so obscure, and their results so erratic, that their employment, even by educated and experienced physicians or dentists, is not without hazard. Of the agents above named, antipyrine is probably the more dangerous, but with the whole group of coal tar derivatives danger is only a question of degree.

Many proprietary preparations under "trade-mark" names

have of late been widely exploited among dentists and physicians; of these preparations acetanilid is generally the base, its depressing effects being, theoretically, at least, overcome by combinations with caffein, ammonia or other stimulants. To what extent these combinations lessen the dangers which attend the use of the antipyretics when given alone remains to be shown by the only final test, time and work; but certainly the cases just cited at least justify and, indeed, demand the utmost caution in their employment.

ANNOUNCEMENTS.

BOARD OF DENTAL EXAMINERS OF PENNSYLVANIA.

Examination of applicants for license to practice dentistry in Pennsylvania will be held April 11th, 12th, 13th and 14th, in Philadelphia and Pittsburg, and June 13th, 14th, 15th and 16th, 1899, in Philadelphia. Applicants should state in which city they desire examination when they apply for examination blanks to the Dental Council, Harrisburg, Pa.

G. W. Klump, Secretary, Williamsport, Pa.

AMERICAN MEDICAL ASSOCIATION.

The next meeting of the American Medical Association will be held at Columbus, Ohio, June 6th to 9th, 1899.

The Section on Stomatology will be of unusual interest, since its program will be unlike any ever presented at any other dental society meeting. It will be made up mostly if not entirely of original papers, although the papers presented before this section have always been of high order. Papers upon the manipulation and technique of operations and mechanical dentistry are never read at these meetings. Only such subjects as are of interest to the dental and medical professions are received. These papers have always been selected by the secretary with the greatest care. There is no business to transact in the section. Everything in this matter is referred to the business committee (composed of the last three retired Chairmen of Sections) which meets every afternoon at 5 o'clock, to consider the welfare of the whole Association and of each section. These matters are discussed, and if favorably considered, they are reported favorably to the general meeting. This method relieves the sec-

tions and general meetings of considerable routine work, and also gives more time to do the regular business.

On Tuesday afternoon a committee of three is appointed in each section to nominate officers, a chairman and secretary, for the following year. The committee reports Wednesday, at which time the candidates are elected. Since the offices of chairman and secretary carry no great honor, there is very little desire on the part of the members for the position, hence politics never mar the session.

With the exception of a few years, the present secretary has been in office continuously since the section was established, eighteen years ago. There are many advantages in having a permanent secretary, since a new chairman is elected nearly every year a permanent secretary is familiar with the methods of conducting the section and knows just whom to call on for papers, no matter in what particular part of the country the association may meet. The character of the papers are always under his supervision. With his general knowledge of the workings of the general meetings as well as the section, if he is interested, the work goes on without friction.

The meetings of the Section on Stomatology are never largely attended, principally for the reason that there are no attractions except the advancement of dental science. The smallest attendance at any one session of a meeting was twelve, the largest ninety-six, with an average of twenty-eight.

The members of the Section on Stomatology have never encouraged or desired merely large numbers. They have always felt that even ten or twelve who were good thinkers and talkers and of sufficient intelligence to discuss the various papers presented, was much more to be desired than a large number of uninterested people.

Dentists are admitted in the same manner as physicians. Dentists holding the D.D.S. degree, upon presenting credentials from their State or local society and the payment of \$5, can become a member of the Association, which also entitles them to the *Journal of the Association* for the coming year.

Any one who wishes to attend the sessions of the Section of Stomatology is permitted to do so.

The following list is the preliminary program of the meeting to date: Chairman's Address, Dr. G. V. I. Brown, Milwaukee; "Actinomycosis," Dr Ludwig Hektoen, Chicago; "Evolution of Decay" (further experiments), Dr. A. C. Hart, San Francisco; "Cocaine and Eucaïne, Their Relative Toxinity" (the results of

original investigation and experimentation upon humans as well as animals), Dr A. H. Peck, Chicago; "Epithelial Structures in the Peridental Membrane" (original investigation), Dr. Frederick Noyes, Chicago; "Infectious Ulcerative Stomatitis," Dr. John Marshall, Chicago; "Oral Surgical Operation" (with illustrations showing remarkable results), Dr. G. V. I. Brown, Milwaukee; "Some Points on the Etiology, Pathology and Treatment of Persistent Pyorrhœa Alveolaris," Dr. G. T. Carpenter, Chicago; "Interstitial Gingivitis" (so-called Pyorrhœa Alveolaris), giving the result of original work with large photographic illustrations showing the progress of the disease from beginning to the loss of the teeth, Dr. Eugene S. Talbot, Chicago; "Syphilitic Infection from Dental Instruments, with Cases," Dr. W. L. Baum, Chicago; "Professional Education and Ethics," Dr. A. E. Baldwin, Chicago.

A revised and complete program will appear in the May number.

G. V. I. Brown, Chairman.

Eugene S. Talbot, Secretary.

TO AMERICAN DENTISTS PRACTICING IN EUROPE.

At a special meeting of the Foreign Relations Committee of the National Association of Dental Faculties of America, held in Cincinnati, Ohio, December 27th, 28th and 29th, 1898, in accordance with the instructions given at the annual meeting of the Association, held in Omaha, Neb., August, 1898, certain of their confreres living in Europe were appointed to form the nucleus of an advisory body, the membership of which it is their purpose to increase to the number of three for each of the principal countries of Europe, as soon as they shall become thoroughly convinced as to the best manner of organizing such board, and fully informed concerning nominations for membership therein.

The Foreign Relations Committee feels itself restricted in its action by the instructions given it by the National Association, and cannot at present clearly see its way to do more than to lay the foundation for future more comprehensive action. It believes that any precipitancy on its part, in the absence of a full and clear comprehension of the exact status of American dentistry in Europe, might do great injury to the cause of American dental education, and prejudice us greatly in the eyes of foreign professional men. The members also realize that until there is a better understanding of professional affairs in Europe by Americans in this country, it would be easy to injure our colleges by

creating a prejudice that would be baseless and unjust. No possible harm can result from the exercise of great care, and even from delay on our part in the completion of the appointment to this board, while radical action in the absence of definite knowledge would be certain to work evil.

Hence the committee has not felt itself justified in doing more at present than to make a few appointments that are entirely unopposed, and to go no further than to commit to such members of the Foreign Board the responsibility of examining the credentials of students making application from foreign countries for matriculation in American dental colleges, the advising of the Foreign Relations Committee of the requirements demanded for practice in such countries, the number, names and professional status of the holders of American dental degrees abroad, and the giving of such other information as may prove of benefit to the National Association of Dental Faculties. For the information of such Foreign Board the committee has unanimously adopted the following expression of opinion:

1. The proposed Board shall be known as the European Advisory Board of the Foreign Relations Committee of the National Association of Dental Faculties of America.

2. Its objects shall be to ascertain the standing and reputation of institutions in foreign countries giving instruction in dental subjects, the character of instruction imparted, the different courses of study, the length of term, the requirements for admission, and the form of certificate given entitling the holder to practice dentistry in such foreign countries.

3. To examine the certificates of Europeans who purpose coming to this country to complete their dental studies after a course, more or less complete, abroad, to report upon the value of such certificates, and how much credit should be allowed them in American dental colleges as a consequence, and to communicate to the Chairman of the Foreign Relations Committee any further facts that may serve as a guide to the deans of American dental colleges in the reception and proper assignment of such students.

4. To furnish the Foreign Relations Committee with the names of such persons as may have come, or who may purpose coming, to the United States for professional instruction, and whom they may believe to be unworthy reception in American colleges, with the facts upon which such belief is based.

5. To obtain for the Foreign Relations Committee, as far as is practicable, a complete list of all American graduates prac-

ting in Europe, giving names of the schools that issued their diplomas, together with date of graduation, and the general reputation and status of such graduates.

The Foreign Relations Committee desires explicitly to say that while it is not authorized to extend the scope of its present action, and deems it unwise on its part to go further in defining the duties of the European Advisory Board, it is heartily in sympathy with American dental graduates abroad in their efforts to obtain a due recognition of the American dental degree in Europe, and pledges itself, whenever it believes the time is ripe for definite action, to take any steps which in its opinion will tend to bring about so desirable an object.

The committee desires to announce the following appointments to the European Advisory Board:

Great Britain—Dr. W. Mitchell, London.

Holland and Belgium—Dr. J. E. Grevers, Amsterdam.

Denmark, Norway and Sweden—Dr. Elof Förberg, Stockholm.

Italy and Greece—Dr. Albert T. Webb, Rome.

France—Dr. J. H. Spaulding, Paris.

Switzerland and Turkey—Dr. L. C. Bryan, Basle.

*S. H. Guilford, J. D. Patterson, T. W. Brophy, H. W. Morgan;
W. C. Barrett, Chairman, 208 Franklin street, Buffalo, N. Y.,
U. S. A. Committee.*



SOCIETY PROCEEDINGS.

DENTAL ASSOCIATION OF NEW SOUTH WALES.

The fifth annual meeting of the Dental Association of New South Wales was held at the Australia Hotel on Tuesday evening last, and was well attended. Dr. A. Burne, President, occupied the Chair.

The President's report for the past year dealt, among other matters, with the present position of the Dental Bill and the untiring work of the council in its struggle to get at least a clause of the bill passed in a House talking nothing but federation.

The members expressed their confidence in the Council, and appreciation of their endeavors, and felt confidence in the final result of the bill being passed.

The balance sheet being read, showed a balance in hand of £97 17s. 3d., which, after deducting all the heavy expenses incurred, proved very satisfactory.

The following members were elected for the year 1899-1900: President, Dr. A. Burne; Vice-Presidents, Messrs. H. Paterson and S. Chain; Hon. Treasurer, Dr. O. Davis; Committee, Messrs. G. G. Marshall, H. S. Newton, E. A. Gabriel, J. S. Darton; Auditors, Messrs. B. Corbett and C. Chandler; Hon. Secretary, Mr. H. Taylor.

The President (Mr. Burne), in returning thanks for his reëlection, pointed out the present position of the Dental Bill and the prospects of its finally becoming law in the near future. He also expressed thanks to the Council and Secretary for their support during a very trying term of office.

A vote of thanks to Chairman closed the meeting.

WAR ON "FAKE" DIPLOMA MILLS.

SPRINGFIELD, ILL., March 1st.

A distinguished lobby of educators and professional men came here to-day to urge the passage of the bill prepared under the direction of President Rogers, of the Northwestern University, providing for the abolition of "fake" diploma mills. The bill was taken up by the House Committee on Education at 2 o'clock. Among those present to urge a favorable report were President Rogers, of Northwestern University; President Draper, of the Illinois State University; President Smith, of the Illinois Wesleyan College at Bloomington; President Nash, of Lombard University, Galesburg, and President Turner, of Lin-

coln College; Dr. E. Fletcher Ingalls, Dr. John M. Dodson and Dr. F. S. Johnson, representing the physicians; Dr. G. V. Black, Dr. Theodore Menges and Dr. Baldwin, representing the dentists, and Dr. Pitner, of Ottawa, Chairman of the Legislative Committee of the State Medical Association. Representative Curtis, who introduced the bill, was not present.

President Rogers made the principal address in support of the measure. In beginning he called the attention of the committee to the origin of the bill, and stated that the educational interests of the State were practically united in asking the Legislature to pass it. President Rogers presented to the committee resolutions of indorsement passed by the colleges of the State. In almost every case the resolutions had been passed by a unanimous vote of the faculties of the institutions concerned. The Chicago institutions indorsing the bill were the University Council, the Senior Colleges and the Ogden School of Science of the University of Chicago, the College of Liberal Arts, Medical School, Women's Medical School, Law School, Dental School and School of Pharmacy of Northwestern University; Armour Institute, Lewis Institute, Chicago Homeopathic College, Jenner Medical College, College of Physicians and Surgeons, Bennett Medical College, Rush Medical College, Chicago Polyclinic Medical School, Chicago Post-Graduate Medical School, Illinois School of Dentistry, Hahnemann Medical College and Hering Medical College.

President Rogers declared that the Faculty of the Chicago College of Law had taken no action, but he was authorized to say that its dean, ex-Judge Moran, favored the bill with the exception of the endowment clause. He also stated that, while the Faculty of the Chicago College of Dental Surgery had not acted on the bill, its dean, Dr. Brophy, approved the creation of a commission as provided for in the bill. Dr. Rogers explained that the degree-conferring institutions in Chicago alone that favored the bill represented about 12,000 students. He also stated that the friends of the bill desired that the ninth section, relating to institutions organized on a commercial basis and dividing income among stockholders, should be so amended as to apply only to institutions hereafter incorporated. President Rogers also asked the committee to amend the clause in the same section which requires institutions hereafter incorporated to have \$100,000 of productive endowment. He suggested that this should be amended so as to read:

"Nor shall any university or college hereafter incorporated

be permitted to grant degrees, unless provision has been made, approved by the Commission as adequate, for educational equipment and proper maintenance."

The speaker explained that the bill was not intended to apply and did not apply to any institutions except those conferring degrees, and that high schools and business colleges were not interested in the matter, as the bill did not affect them. He called attention to the indorsement of the bill by the Chicago Bar Association, the Chicago Medical Society, the Association of Collegiate Alumni, and claimed the bill had the support of the colleges, the physicians, lawyers and dentists of the State.

Chicago Journal.

RECENT PATENTS RELATING TO DENTISTRY.

619272, Head rest, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

619928, Dental cabinet, Chauncey S. Bigelow, assignor to Ransom & Randolph Co., Toledo, Ohio.

619832, Automatic dental plugger, Hugh McLaren, Toronto, Canada, assignor to J. W. Ivory, Philadelphia, Pa.

619847, Apparatus for casting split dies for artificial tooth crowns, John H. Slinkman, assignor of one-half to C. O. Spillman, Martinsburg, W. Va.

620434, Case for hypodermic syringes, George Ermold, New York, N. Y.

620303, Dental flask, Ferdinand Groshans, Baltimore, Md.

TRADE-MARKS.

32491, Medical antipurulent, Battle & Co., Chemists' Corporation, St. Louis, Mo.

32539, Dental gold, S. S. White, Dental Manufacturing Co., Philadelphia, Pa.; Chicago, Ill.; New York and Rochester, N. Y.; Boston, Mass.; Atlanta, Ga.; Berlin, Germany, and Buenos Ayres, Argentina.



OUR QUESTION BOX.*

With Replies From The Best Dental Authorities.

Question 26. *Why cannot amalgam and mercury, which have been left over after operations, be collected and used again?*

Because a chemical combination has taken place between the mercury and the metal of the alloy, which only melting will break up. Copper amalgam may be reheated, but said use of it, probably, causes inferior fillings. Mercury can be collected and used again. If no amalgam is permitted to pass through a broken chamois, and the mercury kept clean, there seems to be no apparent difference between amalgams made with pure and expressed mercury. Scientific tests may, however, show such a difference. It would seem better, all things considered, to avoid such a small economy. *Dr. Otto E. Inglis, Philadelphia, Pa.*

Mercury and amalgam, which has been left over, can be used again, but the cost of the necessary refining would prove greater than the purchase of an equal amount of new alloy.

Dr. V. Walter Gilbert, Philadelphia, Pa.

The mercury may be used again if kept from oxidizing, and the metals in the scrap amalgam may also be utilized in making new alloy if separated and refined.

Dr. George R. Beecher, Philadelphia, Pa.

Question 27. *What is your treatment for acute pericementitis and incipient abscesses?*

Such cases usually present at night or when one is busy, consequently the treatment consists in opening the tooth for vent of gas or pus, and moderately cleansing canals with antiseptics. If the tooth be extruded beyond its fellows, a cap guard is struck up and cemented to a neighboring tooth to give the pericementum rest. A small pellet of cotton, moistened with some antiseptic oil, is placed loosely in the pulp cavity. The patient is requested to take a dose of magnesium sulphate, or citrate, and a hot pediluvium. If venting gives prompt relief, a cure may be expected. Leeching or lancing may be necessary. Prescribe some of the coal tar products, Dover's powders, or morphia for pain. Request the patient to return the next day, when the indications are met.

Dr. Inglis.

*Address all questions for this Department to its editor, Dr. Henry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.

Lance the gum over the affected tooth, and thoroughly apply a good counter-irritant, such as iodine and aconite, equal parts.

Dr. Beecher.

A roasted raisin and capsicum make an excellent counter-irritant for teeth in this condition.

Question 28. *Why does a tooth with a putrid pulp so often give trouble, resulting in acute pericementitis and alveolar abscess, on being opened up for treatment when previously the same tooth has given no trouble?*

After a tooth is opened the chances are greater for the tissues about the apex of the root to become infected. It is a well known fact that abscess never occurs at the apex of a tooth unless the pulp of that tooth is dead. A tooth is like a trick bottle which has a small hole at the bottom. When the mouth of the bottle is closed by the cork, none of the contents of the bottle escapes through the lower opening, but as soon as the larger end is opened atmospheric pressure forces the liquid through the smaller opening. So it is with a tooth when its larger end is opened, with the exception that atmospheric pressure is not the only force that is brought into play. A commendable theory is advanced that on opening into the pulp chamber one allows all the requisites for the encouragement of bacterial growth to enter, as moisture, light, oxygen and microorganisms. There is also the mechanical side of the question. No matter how delicately one works, a small portion of the contents, of the pulp canal is likely to be forced through the apical foramen. If this substance be laden with microorganisms it is a bacteriological irritant; if it be filling material it acts as a foreign body and becomes a mechanical irritant; and if it be a drug it may act as a chemical irritant.

M. I. Schamberg, M.D., D.D.S.

Because apical sepsis has been induced by instrumentation or carelessness. The rubber-dam and free use of antiseptics are indicated in all such cases as preventive measures.

Dr. Otto E. Inglis.

If the operator will apply the dam and carefully sterilize the tooth before and after opening with a 25 per cent. solution of hydronaphthol he will avoid such trouble. The cause is that he is not careful to sterilize the putrid matter, which is filled with germs, and probably forces some of it through the apical foramen.

Dr. George R. Beecher.

The reason why a putrid pulp gives trouble on being opened up for treatment is its exposure to the air and microorganisms.

Dr. V. Walter Gilbert.

Question 29. *Do any firms making or selling cataphoric outfits guarantee anesthetic results, and if not, why?*

If any firm guarantees their cataphoric outfit to bring about anesthesia in teeth of all patients they misrepresent facts. As morphia and similar drugs act differently on different constitutions, so will cataphoresis. But in the majority of cases it gives good results.

Question 30. *Can a dentist take a post-graduate course at some of the dental colleges in administering gas and extracting?*

Yes; at any of the best colleges. *Harry B. Hickman.*



PRACTICAL POINTS.*

Mouth Wash after Removal of Calculus.—Use a hot boracic acid solution, about 1 to 600. *Dental Review.*

Wash for Pyorrhea Pockets.—In my office I use tar water and hammamelis, half and half. I always have it warm.

Dr. Good, Dental Review.

For Sensitive Dentine.—Ammonal, 10 grains, administered one-half hour before operating has been found, in some cases, to reduce the perception of pain.

H. H. Burchard, International Dental Journal.

Formaldehyde: an Antidote.—Should formaldehyde drop on the tongue, cheeks or lips swab with cotton dipped in grain alcohol. This will allay the burning sensation.

J. H. Hanning, Items of Interest.

Relief of Surface Sensitiveness in Shallow Cavities.—Carbolic acid, followed by alcohol, evaporated with warm air, seems to give the best results with the least accompanying discomfort.

Dr. C. N. Johnson, Dental Cosmos.

After-Pains of Extraction.—Clean out the socket and dust with orthoform, seal loosely with cotton. Gives relief for from six to twenty-four hours. More than two applications rarely necessary.

A. D. Keyser, Items of Interest.

Antiseptic Mouth Wash.—For one of the nicest antiseptic mouth washes, in a four-ounce bottle dissolved four drops oil of cassia in alcohol, add one ounce of pasteurine, and fill up with sterilized water.

Dr. Moody, Dental Review.

Prof. Julius Witzel advocates Boennecker's modification of Callahan's method in the use of sulphuric acid for opening pulp-canals; that is, the substitution of peroxide of sodium for the bicarbonate.

Ohio Dental Journal.

Arrest of Dental Hemorrhage.—From 5 to 10 parts gelatine are to be dissolved in 100 parts sodium chloride solution. Liquefy in hot water, saturate a cotton or gauze plug and insert in the alveolus.

Trans., H. Prinz, in Ohio Dental Journal.

Removal of an Inlay Matrix.—After the matrix is perfectly formed, if it is filled with beeswax just flush, it can be removed from the cavity with a sharp pointed excavator without any danger of changing its shape.

L. M. Matthews, Items of Interest.

*Compiled by Mrs. J. M. Walker, Bay St. Louis, Mississippi.

For Sensitiveness at the Necks of the Teeth.—A saturated solution of carbonate of potassium in glycerine, applied to the points of sensitiveness, will counteract the action of ferments and allay hypersensitiveness.

Dr. A. C. Hart, Items of Interest.

Cement Linings for Amalgam Fillings.—Cement fills the porous dentine and prevents chemical action upon the enamel. In deep cavities make the body of the filling of cement. When set, add a thin mixture of cement, and at once finish with amalgam or gold.

Dr. S. B. Palmer, International Dental Journal.

Fusing the Jenkins Porcelain Body.—It would be possible for one to use the ordinary gas furnace, * * * or one need not have a furnace. You can take some of Teague's Compound, make a little muffle, place it over charcoal, and apply a blow-pipe flame to the bottom of the muffle.

Dr. Deems, International Dental Journal.

Management of Sensitive Dentine.—The whole question, except in rare instances, resolves itself into the following summary: Manipulative skill on the part of the operator; knowing how to control the different temperaments among our patients; the invariable use of the keenest, sharpest instruments.

Dr. C. N. Johnson, Dental Cosmos.

Pulp Devitalization in Posterior Teeth.—To minute particle of arsenic crystals add about double the quantity of alum and a drop of campho-phenique. Take up the mass on a small pledget of devitalizing fiber, which, as it contains morphine, will assist in keeping the tooth quiet. Iodoform will prevent subsequent soreness.

Dr. F. C. Payne, Pa. Med. Den. Gazette.

Mouth Washes.—It has always seemed to me an unwise thing to advise the use of stimulating washes daily; any member that is over-stimulated becomes abnormal. Asepsis of the mouth would be much better attained by use of the brush and mechanical cleansing than by the use of antiseptics.

Dr. Mary V. Hartzell, Dental Review.

Lining Cavities Under Amalgam.—Lining cavities under amalgam with tin is good practice next to cement. It presents an amalgam largely composed of tin, which, like tin, arrests caries. It also blends the elements in the alloy which always exist in amalgam, caused by cuttings not fully amalgamated.

Dr. S. B. Palmer, International Dental Journal.

Pulp Nodules Diagnosis.—There is one sure sign, if you can see the patient when the paroxysm of pain is on, and immediately, before it passes off, tap the teeth, you will always find extreme sensitiveness in the affected tooth until the pain ceases. In a few seconds it passes off and you cannot discover that one tooth is more affected than the other.

Dr. J. N. Crouse, Dental Review.

Protection of Pulp from Thermal Changes in Deep Cavity.—Thoroughly dry with absolute alcohol, then coat with common rosin, dissolved in chloroform. Cut thin pieces of asbestos felt, just large enough to cover bottom of cavity. Moisten with wood creosote or campho-phenique, and cover one side with a mixture of oxid of zinc and iodol, and vaseline or alboline. Place over bottom of cavity. Fill as desired.

J. G. Templeton, Dental Review.

Pulpol—A Therapeutic Pulp Capping Material.—Pulpol is a new medicated cement, non-irritating, a bad conductor of heat, a powerful antiseptic and anodyne. Its chief ingredients are oxide of zinc and eugenol, nearly 30 per cent. of the latter. Mix a little less than doughy and apply without pressure. In from five to fifteen minutes it hardens sufficiently to allow introduction of filling.

H. S. Sutphen, Items of Interest.

The Matrix for Porcelain Inlay.—Platinum is preferable to gold for making the matrix. Burnishing to the cavity walls makes it stiff and springy so that it can be removed without distortion. It is tougher than gold, and quite as ductile, and is capable of standing any temperature desired, a vital point, as high fusing bodies are stronger and more easily contoured than those which melt at 2,000 degrees or under. Their shades also vary less in the burnishing.

Dr. Joseph Head, Dental Cosmos.

Sterilized Waxed Ligatures.—Silk thread, sizes A, B, C or D, may be sterilized and waxed on the spool by soaking in a solution of wax containing 1 per cent. formaldehyde (added in the form of paraform—nearly solid formaldehyde). ^{the spools} ~~the solution.~~ in the wax in a porcelain lined dish having a plug and insert and keep in a water bath for six hours. Take the spools out, dry with sterilized towel, and place in a case in which is kept pieces of pumice stone saturated with formaldehyde.

Dr. A. C. Hart, Items of Interest.

Sterilizing Cavities.—I have followed the principle of sterilizing all cavities, as far as possible, for a number of years, and I believe it is a very valuable practice. I have been accustomed

to using for this purpose formaldehyde, oil of cloves, and to some extent bichloride of mercury, and while I have heard objections raised to the use of the last, as having a tendency to stain the teeth, I have used it for a great many years, and have no recollection of any discoloration of tooth substance from its use in this manner.

M. L. Rhein, Items of Interest.

Pulp Removal in the Treatment of Pyorrhea Alveolaris.—

I have cured many a case of pyorrhea alveolaris and made a loose tooth firm, by removing the pulp of the tooth and filling the root, in that way giving a better nutritional supply to the pericemental circulation. A tooth without a pulp stands a better chance of being immune from loss by pyorrhea alveolaris than with a pulp that, in case of nutritional deficiency or other causes, would be constantly robbing the pericementum of the nutrient protoplasm which it requires for its healthy maintenance.

Dr. M. L. Rhein, Dental Cosmos.

Nitrate of Silver in Difficult Tooth Eruption.—In the eruption of the temporary teeth, and of the third molar, except when the anatomical conditions indicate surgical interference, painting the red and congested gums with the caustic pencil, or with a pellet of moistened cotton rubbed against the silver nitrate pencil, is of great value through its astringent and antiseptic powers. For the third molars the pellet of cotton may be introduced under the overlying gum and gently passed all around the crown. Two applications are usually sufficient, but may be repeated as indicated.

H. Prinz, in Ohio Dental Journal.

Local Anesthesia with Orthoform.—

R.—Orthoform neutral,

Orthoform muriate.....aa 0.1

Aqua distil..... 4.0

Dissolve the muriate in the distilled water, warm slightly and add the neutral orthoform. It meets all the requirements for a local anesthetic; the anesthesia lasts longer than cocaine; there are no bad after-effects, as swelling or sloughing; the solution is non-toxic, and several injections can be made at one mechanical cleansing. There is very little hemorrhage, and the wound heals quickly.

H. Prinz, in Ohio Den. Jour.

Immunized Carious Dentine.—To render immune to any further action of bacteria the layer of decomposed dentine over the pulp, dehydrate thoroughly with bibulous paper, chloroform and hot air; apply bicarbonate of soda and dehydrate again; apply as antiseptic a concentrated carbolic acid—trichloric acid

—10 per cent. solution of formaldehyde. When thoroughly saturated fill temporarily with oxysulphate. After 24 to 48 hours renew the antiseptic treatment, place in a layer of medicated cement (preferably thymol), cover with gutta-percha, fill with oxyphosphate, and complete with metallic filling.

R. H. Hofheints, Items of Interest.

Tin at the Cervical Margin in Gold Fillings.—Gold, by induction, imparts to tin in contact a preserving property; that is, there is an interchange of atoms which forms an alloy of gold and tin which is insoluble. This alloy is only about the thickness of one layer of tinfoil. * * * Tin in case of two or three leaves does not enter into combination, and it is subjected to galvanic action produced by the gold, and softening is the result. I would not risk gold and tin rolled together into a rope, but would feel safe with gold and tin placed together in alternate leaves and cut with scissors, provided the gold was placed against the dentine. An excess of tin will unbalance the alloy and allow disintegration. *Dr. S. B. Palmer, International Den. Jour.*

Formaldehyde in the Prevention of Decay.—With the rubber-dam so applied as to perfectly protect the soft tissues the surface of the teeth is first cleaned with 3 per cent. pyrozone. Formaldehyde, varying from 2 to 40 per cent. strength, according to the surface, is then applied to cavities, carious surfaces, and healthy portions. After several applications of formaldehyde, dry the surface and coat with a saturate solution of paraform in chloroform, to which has been added sufficient hard Canada balsam to make the solution a thin varnish. When the varnish has nearly dried, cavities may be filled with amalgam, gold, gutta-percha, or cement.

Dr. A. C. Hart, Pa. Med. Den. Gazette.

Look on this picture,

"There can be no doubt that the use of flesh foods is one of the chief causes of dental decay. Little particles of meat get between the teeth and encourage the growth of destructive germs. The germs that destroy teeth are the same as those that cause the decay of flesh."—*H. T. Harney, Ohio Den. Jour., March, 1899.*

And then on this.

"In the case of lower animals, as the cats, dogs, etc., and also of the Esquimaux, where diet is almost exclusively meat, the percentage of decay is almost nil. This is owing to the fact that meat is acted upon by saprophytes, which are not acid-forming bacteria, and the result of saprophytic action is not a ferment, but an alkali."—*A. C. Hart, Items of Interest, March, 1899.*

MISCELLANY.

FUSIBLE ALLOY.—Tin, four parts; lead, four parts; bismuth, seven parts; cadmium, one part. Fuse the tin and lead; then add the other two metals; melt in boiling water. Does not change its properties with use.

John G. Harper.

TO REMOVE PLASTER FROM VULCANITE.—Saturate a pellet of cotton with strong cider vinegar and rub surface coated with plaster and all trace will be removed. I have tried everything appearing in dental journals and that I could hear of, but all to no purpose, until the above proved most effectual.

H. C. Heady, D.D.S.

THE WRONG TOOTH.—A medical practitioner in England was sued recently for £25 damages for extracting the wrong tooth. It seems there was a bony growth at the root of an aching molar, which was either adherent to or projected beneath the neighboring tooth. When the bothersome tooth was extracted the other came with it. Judgment was for the defendant with costs.

Exchange.

DEATH AFTER CHLOROFORM.—Miss Ida Pieczonka, a violinist of much accomplishment and still more promise for the future, died recently in Berlin after having undergone a slight dental operation. The young lady was chloroformed, but failed to inform Dr. Friedrich, who is one of the most eminent dental practitioners of Europe, that she was addicted to the use of morphine. After the operation she became unconscious and never came to.

DEATH DURING TOOTH EXTRACTION.—On February 5th, at Meriden, Conn., John E. Smith, aged thirty-five years, and apparently in good health, called on Dr. L. T. Doolittle to have sixteen teeth extracted. Dr. E. W. Delcher was present, and gave chloroform, an amount "not exceeding a teaspoonful." During the extraction of the second tooth the patient collapsed and died. His death was pronounced due to strangulation. It is well to remember that it is never safe to begin operative procedures in chloroform narcosis until the patient is completely anesthetized.

Medical News.

BORAX SOLUTION FOR SOLDERING.—In soldering gold crowns I use a saturated aqueous solution of borax, made by filling a bottle with water, and dropping into it a lump of borax. This is allowed to boil on top of my vulcanizer or elsewhere, and the water will take up a certain amount of the borax, leaving the residue undissolved. An ounce of this solution will last a busy man about a year. In using it the piece to be soldered is simply moistened where the solder is wanted to flow, and the solder will run like a flash, much easier than when the borax powder is used.

Dr. J. T. Usher, in Cosmos.

The *London Spectator* and several other papers are having an animated discussion as to whether "catching cold" is not really an infection, and the wise men among the laity are rushing into the fray with great enthusiasm. The infectionists have rather the best of it so far, as they can site the complete freedom from "colds" of Nansen's party in the Polar ice and their prompt epidemic of coryza on return to civilization, and the curious "strangers' cold" at St. Kitts, which sets half the inhabitants to sneezing every time a ship touches at the port, and for weeks afterward. Moreover, as one of them accurately points out, "colds" are almost invariably caught in churches, theaters, railway carriages, etc., where bad air and microbes abound, and seldom in the open country or when camping out.

COCAINE AND SPARTEIN ANESTHESIA.—Bagot combines spartein, an alkaloid of scoparius, or broom-plant, with cocaine, which obviates the depressing effect of the cocaine on the heart, while rendering the anesthesia more lasting. He has a powder prepared beforehand: cocaine hydrochlorate .04 gm., and spartein sulphate .05 gm. When ready to use, the powder is dissolved in one or two cubic centimeters of boiled water. As much as 8 to 12 centigrams of cocaine can thus be injected in fractional injections without accident. In operating on a tumor he injects 1 c.c. of the weaker solution on one side, and waits seven or eight minutes before injecting the other side. He can then commence the operation in a few minutes on the side first injected. If the operation requires over twenty minutes, a third injection can be made, which keeps up the anesthesia for three-quarters of an hour.

Gazette Méd. de Liège.

USE OF CARBOLIC ACID AFTER EXTRACTION.—A few years ago, while practicing in Central America, after recovering from

the yellow fever, three devitalized teeth began to molest me, and extraction was the only thing to be done, as they had been treated for years while I was in the United States, but at times would break out anew.

The upper left lateral was a curved root, and, upon extraction, injured the socket and, combined with the many times previous of abscessing, caused inflammation and pus to exude, as it never seemed to heal. This continued on for several weeks, and I injected peroxide, iodine and aconite, but to no purpose. I began to be discouraged, and finally, in desperation, wiped out with pure carbolic acid. Two applications proved a success, and in a few days the openings had healed, and no further trouble ensued.

Dr. Luella Cool, San Francisco, Cal.

DELICACY IN OPERATING.—If there be any one thing which a dentist should cultivate, it is delicacy and lightness of touch. Some dentists whom we have known go at their work like a miner with a pick-axe. They are rough, harsh, and their hand, whether with the excavator, the plugger, or engaged in adjusting the various appliances of our art, is ever heavy. Their arms always rest burdensomely upon the patient's head. Their fingernails are continually digging into tender tissues, and there is a coarseness and clumsiness about their operations that marks an unpardonable heedlessness of the comfort of the patient. There are few things which so forcibly commend an operator to those under his care as tenderness, and even daintiness, in regard to their sensibilities. The engine-bur should be directed as if it were a sentient thing, and napkins should be used as though they were a spontaneous production.

Editor, Practitioner.

A PROCESS FOR NICKEL-PLATING.—Boil in a copper vessel a saturated solution of zinc chloride and an equal quantity of water. While boiling, add hydrochloric acid, drop by drop, until the precipitate at first thrown down is redissolved. Now add zinc in powder, until the bottom of the kettle is nearly covered with a precipitate of zinc. The bath is now ready for the addition of a salt of nickel, and you may use either the sulphate or the nitrate. Add it in sufficient quantity to give the bath a strong green color. The articles to be nickeled are now hung in the bath by means of a zinc wire, or a strip of sheet zinc, and a few pieces of the latter are thrown in along with them. Raise

the heat to a strong boil, and continue it for several minutes, or until the articles are covered with a bright coating of nickel. The articles should be thoroughly cleaned and free from grease before being put in the bath.

Am. Druggist.

NITROUS OXIDE, AIR AND OXYGEN.—At the Royal Medical and Chirurgical Society, February 14th, Hewitt read a paper on the effects upon man of definite mixtures of nitrous oxide and air, and nitrous oxide and oxygen. Pure nitrous oxide causes deep stertorous breathing, cyanosis and anoxemic convulsions. These may be avoided by mixing oxygen or air with the gas; but there is no fixed proportion which will best answer for all patients. The best anesthesia is obtained by commencing with a mixture of gas with two per cent. of oxygen, and increasing the latter gradually until eight or ten per cent. is employed. The next best results to these are obtained with fixed mixtures of gas and oxygen, five, six or seven per cent. for males; seven, eight or nine per cent. for women and children. Next after these results gas and air, fourteen to eighteen per cent. of the latter for men, and eighteen to twenty-two per cent. for women and children, have been proved to be best.

Medical News.



PUBLISHER'S NOTICE.....

As will be observed Dr. Welch's failing health necessitated a change in editorship, and we are proud of the fact that we can share with our readers our good fortune, and offer them the fruit of the pen and energy of Dr. Wilbur F. Litch, who needs no introduction to the dental profession, as his fame is not confined to this side of the Atlantic alone.


Our effort in the future, as in the past, will be to make the BRIEF the foremost dental journal published in the United States, and the price to remain at \$1.00 per year.

We have changed our appearance outwardly, too, and it now behooves the dental profession to watch closely its contents, to readily understand and appreciate what we meant in the last issue when we said: "We are traveling at an increased pace. Watch closely the BRIEF."

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THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, MAY, 1899.

No. 5

ORIGINAL COMMUNICATIONS.

STERILIZATION IN DENTAL PRACTICE.

T. C. Van Kirk, D.D.S., Allegheny, Pa.

A Paper Read Before the Odontological Society of Western Pennsylvania, at Pittsburg, March 14th, 1899.

Sterilization may be defined as the process of destroying all spores and germs, with a view to prevent the development of bacterial or other organisms.

Ever since the discovery of bacteria by Leeuwenhoeck in 1675, and the subsequent development of the germ theory of disease, it has been the aim of the medical profession to combat a large range of pathological conditions by the use of agents which either prevent the admission of germs into the system, or destroy those that may have already gained entrance.

To the surgeon it is not only important to destroy all germs which may have found lodgment on the instruments and appliances employed in his operations in order to prevent the infection of his patient by pathogenic organisms, but also to be scrupulously careful after the operation to prevent their admission or inhibit their growth by the use of antiseptic dressings; in other words, complete sterilization is the "*Sine qua non*" of the careful surgeon of the present day.

If, then, sterilization is so important a factor to the general surgeon, why not to the dental surgeon, who also operates upon vital tissues? I shall consider this theme under two heads, (a) The importance of sterilization. (b) The methods.

The importance of or necessity for sterilization implies the probable presence of pathogenic bacteria in all cases operated upon. Miller has demonstrated that there are twenty-two mouth bacteria, of these eight or ten are almost constantly met with,

and six are invariable present. Besides these mouth bacteria, nearly all of which are non-pathogenic, almost every minute organism which has been described as growing in any position, has been found in the mouth. In other words, the mouth is a typical incubating chamber for the culture of almost all germs. During epidemics or when persons come in contact with those suffering from various zymotic diseases the organisms associated with them are frequently taken into the mouth, and if the conditions are favorable for their reproduction, they may multiply until eventually they develop in the individual some one of various diseases with which they are associated as causative agencies.

Dr. Woodhead, of Edinburgh, in his work entitled "Bacteria and their Products" claims that in the very act of developing in the mouth they give rise to ptomaines and other poisonous products of bacterial life, which may render the saliva toxic when by a bite or wound it is introduced into the system of the individual himself or that of another person.

Among the pathogenic organisms which may be found in the mouth the same author mentions as the most important the micrococcus of sputum septicæmia, it is found almost invariably in patients suffering with pneumonia, but it also occurs frequently in the mouths of healthy persons. When injected into animals, either in the sputum or as a pure culture, death occurs in from twenty-four to thirty-six hours, with all the symptoms of acute septicæmia. Various other septic forms have been isolated from the sputum. Dr. Woodhead also says: "I have seen several cases where death has ensued with all the symptoms of most acute septicæmia, or with symptoms of more chronic poisoning, as in pyæmia, from the extraction of a tooth or the lancing of the gums in patients with imperfectly cleansed mouths, or in persons who have been engaged in attendance on those suffering from certain infectious diseases. The organisms in such cases finding their way into the wounds that were unavoidably made, whence they invade the lymphatics or pass directly into the blood stream."

Surgeon-General Sternberg, of the United States Army, an eminent authority on bacteriology, states that he has found the pneumo-coccus constantly present in his own mouth, and that he has repeatedly caused pneumonia, followed by death, in rabbits by injecting them with the saliva taken from his mouth when in a state of perfect health. Thus it is quite among the possibilities

that the famous author of the "Recessional," Rudyard Kipling, received what proved to be almost fatal, the inoculation of pneumonia germs from the unsterilized instruments of Sternburg's "popular dentist."

Numerous authorities might be quoted substantiating the foregoing statements, but time will not permit. I have thus shown that even in the most healthy mouths, to say nothing of those contaminated by disease, such as tuberculosis, erysipelas, syphilis, etc., there may be present microorganisms which, becoming attached to our instruments, may by accident or otherwise be introduced into the system of the patient himself or of some succeeding patient, or even of the operator, with calamitous results.

It may be true that the majority of our patients do not realize the dangers from this source, but their ignorance does not justify our lack of care.

Many of our patients are, however, well informed as to the general principles of bacteriology, and, although unable to differentiate between a micrococcus, a bacillus, or a spirillum, recognize the dangers of inoculation from dental instruments. The only method by which their safety can be assured and their minds be set at rest is by the complete sterilization of the mouth of the patient, the hands of the operator, and of all instruments to be employed in the operation. This brings me to the next division of the subject.

The Method of Sterilizing.—I shall first speak of the sterilization of instruments. Some dentists make a practice of washing in cold water and carefully drying all instruments after every operation; others immerse them in hot or boiling water; others dip them in some fluid possessing supposed germicidal properties; but bacteriology demonstrates to us that such methods do not necessarily accomplish sterilization. How then can it be accomplished or how may all bacteria be destroyed?

Muir and Ritchie in their *Manual of Bacteriology* say that all bacteria can be killed either by heat, drying, starvation, or by chemical agents; of these, chemical agents, commonly called germicides, are most frequently used. The action of these depends on the variety of bacterium to be destroyed, on its state of nutrition (whether vegetative or spored), on the degree of heat employed, and on the agent itself. As a general rule the two chemical agents which heretofore have most frequently been used are a 1 in 20 solution of carbolic acid, and a 1 in 1,000

solution of bichloride of mercury. But these do not meet all the requirements of a sterilizing agent for a dental office, not only because of the time required in some cases for complete sterilization, but because of the corrosive action on steel instruments, and because some articles would be destroyed by being immersed in these solutions. Many have, therefore, taken advantage of the principle that all bacteria are destroyed by heat, and have advocated this method of sterilization. This, again, presents disadvantages to the dentist, as the high temperature necessary to kill the spores of some bacilli injures the temper of delicate steel instruments.

The temperature required depends on the variety of bacterium to be destroyed, and on the kind of heat employed, whether dry heat, as hot air, or moist heat, as hot water or steam. To illustrate, Koch found that the spores of anthrax bacillus which were killed by moist heat at 100 degrees C., or 212 degrees F., in one hour, required an exposure of 3 hours in dry heat at 140 degrees C., 284 degrees F. It is thus evident that moist heat is much more potent than dry heat of the same temperature, and the time required in all cases varies inversely as the temperature employed. Koch also claims that all spores and organisms are killed if exposed for 15 minutes to moist heat at 120 degrees C., or 248 degrees F.

I have thus far tried to show in a general way how all bacteria may be destroyed, the agents used, and the time required; I shall now speak more specifically of those methods of sterilizing which are most available in a dentist's office; the agents used and the apparatus or sterilizers employed.

The hands of the operator should be washed and disinfected after each operation, not as an act of cleanliness merely, but as a safeguard, for himself and succeeding patient, against possible infection from a previous patient. The hands may be quickly sterilized by washing them in a 1 in 1,000 solution bichloride of mercury. A liquid preparation called *Ethereal Antiseptic Soap*, prepared by Park, Davis & Co., is in use pleasant and convenient, and the claim is made that it is efficient as a disinfectant. My own method, after washing, is to apply to the hands a small quantity of borolyptol, allowing it to dry upon the skin.

The mouth of the patient may be rendered practically sterile by the use of some one of the many good antiseptics that are now available. Of these borolyptol is coming into popular favor.

A small quantity held in the mouth for a few minutes arrests the growth of the microörganisms. Tubes of agar agar planted with saliva from the mouth, after exposure to borolyptol, show no growth after forty-eight hours incubation, while tubes inoculated from the same mouth before the application just stated gave abundant growth, thus showing that borolyptol has at least the power of inhibiting the growth of mouth bacteria.

Sterilization of Instruments.—Of the four methods of destroying bacteria only two can be utilized for sterilizing instruments, namely, heat and chemical action. The use of these agencies can be best illustrated by describing two or three forms of apparatus in which they are employed.

The first experimented with was the "Empire Sterilizer." The sterilizing agency in this apparatus is an antiseptic or germicidal solution in which the points of the instruments are immersed. It has, also, a sand bath at one end kept hot by a Bunsen burner. The sand bath is for the purpose of drying the instruments, after removing them from the germicidal solution, by drawing them back and forth through the hot sand. This solution I did not test for its germicidal properties, but the apparatus was discarded, for the reasons that the solution tarnished steel instruments; that only a portion of most instruments could be exposed to the action of the solution, and also that the appearance of the apparatus itself was unattractive. It was found, too, that after using the solution for a few days a gelatinous precipitate formed at the bottom of the apparatus.

The next method tried was that of boiling water. The objections to this method are, first, that the time required makes it impracticable, for, as has already been shown, to kill the spores of some bacilli requires an exposure of one hour in boiling water. Then some articles, such as rubber-dam bridles and mouth mirrors, cannot be subjected to this process without injury. Another objection is the care required, for if allowed to boil to dryness the temper of the instruments may be destroyed.

The next method, and the only one that is free from objections, is the use of formaldehyde gas. I have been using this agent for the past six months with most satisfactory results, and find it to be one of the most reliable sterilizers known, and one capable of almost universal application.

Formaldehyde was discovered by Von Hoffman in 1867, and was regarded simply as a chemical curiosity until the dis-

covery of its powerful antiseptic properties by Snow in 1888. Since that time interest in this compound has increased each year, until now it is by many ranked above all other antiseptic and germicidal agencies. It is absolutely neutral in character, having neither an acid nor an alkaline reaction. The United States Government has for several years used formaldehyde at all quarantine and naval stations.

Dr. J. Wortman, director of the experiment station for plant physiology, Geisenheim-on-the-Rhine, has made careful studies of formaldehyde in its action on bacteria and moulds. He claims that a solution of 1 part in 1,000,000 of water possesses a distinctly anti-putrefactive action, and a dilution of 1 in 125,000 parts water suppresses any development of bacterial life. Stahl, Koch, Cohn and others corroborate the reports of Dr. Wortman concerning the germicidal properties of formaldehyde.

Dr. Kinyonn, of the United States Marine hospital service, in a report on disinfection by formaldehyde gas, shows that of twelve different organisms exposed to a saturated atmosphere of formaldehyde all were killed in periods of exposure varying from one to ten (1 to 10) minutes. [The essayist here exhibited tubes of agar agar, which he had planted with different germs and incubated for forty-eight hours. Those which had been sterilized by formaldehyde gas before incubation showed no growths; those which had not been sterilized showed abundant growths.]

A 40 per cent. aqueous solution of formaldehyde gas can be purchased, and the gas regenerated from this solution, or it may be diluted to any degree of strength required; but the cheapest and most convenient method is to generate the gas from methyl alcohol. For this purpose I use the Moffatt formaldehyde lamp, or generator. This consists of an apparatus for producing formaldehyde vapor by the limited oxidation or partial combustion of wood alcohol (methyl alcohol).

The base of the generator is a receptacle in which the alcohol is placed, and contains a wick to supply the alcohol to the upper part of the apparatus, where it is subjected to limited oxidation. This upper part is a metallic contrivance consisting of a tube or chimney to promote the draft. The formaldehyde vapor is thrown off from the top of this tube. The whole apparatus is adjusted so as to give the largest possible yield of formaldehyde.

The operation of the apparatus is self-regulating; all that

is necessary is to remove the upper part of the generator, light the wick, and replace the upper part. The apparatus will then generate formaldehyde until the alcohol is exhausted.

The expense of generating the gas by this method is exceedingly trifling—less than one cent a day. It is claimed that one pint of wood alcohol generates sufficient gas to sterilize the pathogenic germs in 3,000 cubic feet of space. Admitting the germicidal powers of formaldehyde gas, the question still remained, Does this generator produce formaldehyde or acetaldehyde, a gas similar in some respects to, but lacking the germicidal properties of, formaldehyde?

To decide this point several chemical tests for formaldehyde were made, each of which showed the presence of formaldehyde, and no trace of acetaldehyde. With the Moffatt lamp, or generator, I use the Lilly formaldehyde sterilizing oven. This consists of a neatly enameled iron case lined with asbestos; into this the gas is conducted from the lamp just described. The oven is ten inches long, nine inches wide and twenty inches high, and contains a wire shelf or rack on which the instruments are placed for sterilizing. It requires very little care to operate, and if forgotten no harm is done the instruments, as they may be left in it indefinitely. The gas can be generated in the morning before beginning work, and by keeping the door of the oven closed, except to admit or remove instruments, one charge may be sufficient for the day.

The instruments are first washed and dried, then placed in the sterilizer for from twenty to thirty minutes, or until needed. In addition to the certainty it affords that all bacteria will be killed, the process possesses other advantages which recommend it; instruments may be left in it indefinitely without danger of injury to the temper or polish; this cannot be said of any other sterilizer with which I am acquainted.

With regard to borolyptol, I think it might be safely used for sterilizing instruments, as only a slight tarnish was formed on steel instruments immersed in it for thirty-six hours, but this is longer than is necessary to accomplish sterilization; half an hour's exposure produced no tarnish whatever.

The sterilization of cavities of the teeth has been purposely omitted in this paper. At some future time I may give the results of some experiments I am conducting along this line by the use of formaldehyde gas, but the results are not sufficiently matured to give at present.

The use of a sterilizer, such as described, kept in view of the patient will at once beget a confidence in the dentist, which will more than repay him for the time and trouble of sterilizing.

From the authorities quoted and from the demonstrations given, two things have been established. First, the presence of germs in the mouth, and the contamination of the instruments when brought in contact with the oral tissues. Second, that these and all other microorganisms may be completely destroyed by the use of that recently discovered and most potent, yet most harmless of all germicides—formaldehyde gas.

DISCUSSION.

Dr. A. G. Reinhart: I believe in thorough sterilization. I begin with the hands, after the removal of accumulations from under the finger nails, and thoroughly wash before the patient, and repeat as often as necessary during the operation. It is doubtful if the mouth can be made thoroughly sterile by the means ordinarily employed. I have no knowledge of borolyptol as yet. The market seems to be full of such preparations, and it is questionable if we can fully endorse any of them without an infringement of the code of ethics. Time and experience are necessary to establish a knowledge as to which or what is best. Formaldehyde is undoubtedly one of the most potent agents of the antiseptic group. Uncleanliness of the mouth is a condition almost universal among the people of all classes; the wealthy and the poor, the refined and the ignorant, and it behooves us to try at least and to educate the community to a full realization of the necessity for purity and cleanliness of the mouth as an essential condition to health.

Dr. J. A. Libbey: Sterilization is a subject we all agree upon while at a dental meeting, but how many of us practice what we preach? I do not propose to terrorize my patients by making any unnecessary display of sterilizing apparatus. A clean office and a clean dentist will always attract favorable attention. Of course, the sterilization of instruments after using by thoroughly cleaning, and then using an antiseptic solution such as formaldehyde is very important. Ordinarily the simpler processes are sufficiently effective for all practical purposes.

Dr. J. F. Thompson: I would like to ask Dr. Van Kirk if he knows anything concerning the systemic effect of formaldehyde gas if inhaled by the patient in sterilizing the cavity of a tooth?

Dr. J. F. Thompson: I think with Dr. Libbey that there is much more preached than practiced. I see the necessity of sterilizing instruments, but I do not believe the dangers of infection by any means as great as we make believe.

Dr. C. W. Bard stated that he uses boiling water to sterilize his instruments when putting them away, and advises the use of antiseptic mouth washes.

Dr. L. P. Haskell: I have listened with interest to the paper and discussion; they have brought to my attention what I have advocated for years; that is, the use of heat not only as a germicidal but as a remedial agent. It is much used in Europe, and it seems strange that the physicians of America have not realized ere this that heat is the great remedy for small-pox, hydrophobia, and other other disorders. Several cases have come under my observation where hydrophobia has been successfully treated by the use of heat. (Dr. Haskell gave details of these cases.)

Dr. C. J. Reynolds: What is the effect of the inhalation of formaldehyde?

Dr. Van Kirk: In closing the discussion I would answer Dr. Reynolds and, also Dr. Thompson, that formaldehyde inhaled is irritating like ammonia, but is non-poisonous.

LACK OF THOROUGHNESS IN DENTAL PRACTICE.

B. F. Arrington, D.D.S., Goldsboro, N. C.

It is regretable that many members of the dental profession are indifferent as to thoroughness in the execution of the varied operations they are called upon to perform, such as the treatment of the teeth and gums, preparing cavities, filling for preservation of teeth, and the removal of deposits from the roots of teeth. On these lines there is great need of improvement; indeed the demand for more studied care and a higher line of excellence in the treatment for preservation of the natural teeth is imperative. Daily thousands of teeth that should be preserved are needlessly sacrificed, not only through neglect of the patient, but through lack of thoroughness on the part of the dentist. Here the question arises, Where does the fault lie, and what is the remedy? By careful investigation the question can surely be determined, and by right concert of action the defect in practice remedied.

For the change requisite it will be useless to look solely to dental examining boards, for many of the members of those organizations are as deficient in thoroughness as young and inexperienced practitioners. In my judgment we must look first to the fountain-head, and make an earnest appeal to our dental colleges. The professors through lectures and careful teaching, with the aid of demonstrators imparting clinical instruction at the chair, can, if they will, remedy the prevailing defects and establish a more perfect order of practice, thus securing the profession against reproach for abuses that should not be much longer tolerated.

For success in securing manipulative thoroughness in treating teeth there must be a willing acceptance of a truly conservative foundation basis of principle to direct and guide in all manipulative practice. Let this position be accepted and established as a rule of action, the work to follow (designed to approach excellence) will be easily accomplished. Teeth will be better preserved with less discomfort to patients, and dentistry will be placed upon a higher plane of possibilities for good than at present.

I have in my possession a gold filling removed from a first lower molar after extraction. The filling containing possibly as much as a book, $\frac{1}{8}$ oz., of gold. The cavity was carefully and nicely excavated and shaped, with comparatively smooth base and walls, and with a slight undercut just below the enamel edge. The adaptation of material to the cavity surface was perfect, and the filling solid from base to finish, and the finish of the surface perfect and beautiful; but it was a failure in results for want of thoroughness in certain particulars. There was no effort made to protect the pulp against the injurious effects of thermal changes. The cavity was deep and closely approached the pulp. In all such cases a non-conducting medium should be applied; in this case it was omitted. The result of this neglect was death of the pulp and loss of the tooth after six years of discomfort and frequent periods of intense suffering.

So it is in many instances where there is over zeal and a desire to manipulate and display gold regardless of consequences. Had the base been protected with sheet lead or gutta-percha, and the cavity filled half or three-quarters with tin, then finished with gold or amalgam, the tooth doubtless would have been better preserved, with a greater guarantee of comfort and at much less cost. Thus it will be seen that perfect preparation of

the cavity, and the perfect introduction of gold, and the beautiful finish of the filling are not all that is requisite for thoroughness in the effort to preserve the teeth, and that other important details must not be ignored or lost sight of.

A one idea line of practice is not abreast with the times, nor best for preservative results. Combination fillings are often indicated, and should be freely used when needed, regardless of fancy or prejudice. Time will determine their value and force conviction as to their true merit.

As in the use of gold, so in the use of plastics there are omissions and abuses that mark or stamp operations as far short of thoroughness from a preservative point of view, and which are hurtful alike to patients and the profession.

Many operators who practice daily the use of amalgam, gutta-percha and cements never take the time or trouble to excavate and prepare cavities for such materials as they would for gold. As they slight in preparation of cavities, so they slight in the introduction and finish of material. Some even boast of filling as many as half a dozen large and medium size cavities in less than an hour's time. Not much to boast of, but much of which to be ashamed. The profession suffers by such methods of practice, and so does the public.

If good results are expected to follow, the preparation of cavities for the reception of any material should be thorough, and the amalgam or gutta-percha should be manipulated with as much care and painstaking as in the use of gold or tin. Fillings either of amalgam or gutta-percha hurriedly manipulated, with neglect of other features of thoroughness, will prove defective, and a failure in a large percentage of cases; for which failure the material is often condemned and pronounced unworthy of use; a reproach entirely unmerited, for the material, as a rule, is good enough for all practical preservative purposes, if rightly used, and should not be condemned for failure when the fault rests with the dentist. It is the abuse of the material, and not its properties or qualities, that causes failure to secure satisfactory results. The neglectful, indifferent operator is the proper subject for censure; often he is criminally negligent and really merits legal prosecution.

Not long since I witnessed the filling of a very large molar cavity with gutta-percha and the whole time occupied in the preparation of the cavity and filling to finish was less than five minutes, the patient being assured by the dentist that the tooth

was well filled and would be useful many years. In conversation with the dentist, after dismissal of patient, he remarked that he could not afford to throw away his time in the use of plastic for the prices he charged.

A similar experience I could relate as to use of amalgam by a prominent member of the profession, who enjoys a local reputation as being a very skilful dentist, but who, like many others, takes short cuts, ignores thoroughness, and abuses use of material. The amalgam filling I have in mind would be a discredit to and bring reproach upon any beginner in practice. With such results from men prominent, and even on examining boards, plastics (unquestionably valuable) will continue to be abused, and public prejudice will increase, and as prejudice increases the value placed upon professional services will decrease and the standard of dentistry will sink rather than rise.

The surest remedy for relief from the evil tendency, this daily malpractice, is to teach and practice the performing of all operations with thoroughness, then success in treatment and in the use of each and every material will follow. Let us fill with what we may, gold, tin, or plastic, the aim and object should be to preserve and perpetuate the natural teeth by the best possible means regardless of time and trouble, and under no circumstances should there be abuse of any filling material, or neglect in preparation of cavities.

It is equally important that great care and patience should be observed in the tedious operation of removal of pyorrheal deposits from roots of teeth, followed by frequent inspections for several weeks. But recently a patient came to me to have fillings introduced, when, upon examination of his teeth to determine the character of the cavities, I detected a typical case of pyorrhea alveolaris. On explaining to him the nature of the disease, he expressed surprise, and said that it had been only a few weeks since he had had the tartar removed and his gums treated, and that he was then using a mouth wash daily. I removed the deposits and made one application of a remedy to the gums, this requiring about two and a half hours of time. At the conclusion of the sitting he commented upon my slowness, and stated that when the other dentist scaled off the tartar for him he was not more than eight or ten minutes about it!

Thoroughness throughout in all treatment and all operations is the only admissible and safe line of action; anything short of it, or of an honest effort to accomplish it, is inexcusa-

ble, and in many cases criminal. For correct teaching and proper instruction on a right line of true conservative practice we must look to our dental colleges, for with them the foundation basis for dental knowledge and practice in all the varied and highest features of professional character and attainments are first imparted and impressed upon the minds of dental students. If colleges fail to accomplish the object desired it will be necessary to appeal to State and national organizations for relief, and for the establishment of more thorough dental teaching and practice.

The first thought and ruling principle in the practice of dentistry should be the preservation of the natural teeth by whatever modes and means it can be best accomplished. Treatment for best results must begin in early childhood, and the plugger and forceps must be used as sparingly as possible.

We will hope that there may soon be evidence of a more general desire for thorough treatment, both of the teeth and their associated tissues, and that there may be no cessation of effort until a higher standard is established, not only in colleges and by examining boards, but by the dental profession generally.



ABSTRACTS AND SELECTIONS.

ETHYL BROMIDE AS AN ANESTHETIC.

E. B. Dickinson, D.D.S., Amherst, Mass.

I desire that you will not confound ethyl bromide with ethyl chloride, ethyl, or any of the bromides used as local anesthetics.

Nunnely, of Leeds, was probably the first to utilize the analgesic properties of ethyl bromide, and to advocate its use as an anesthetic.

Turnbull, of Philadelphia, was much interested in it, and from 1878 to 1882 spent considerable time in investigating its action. At about this period many physicians and dentists used this means of abolishing pain, and from Philadelphia its use spread in various directions. Dr. Price speaks of it in the *St. Louis Medical and Surgical Journal*, Vol. xlv., p. 297. The great difficulty, then, seems to have been to obtain a pure article, and this is scarcely yet overcome, on account of the impurities of the drug and methods of administration, regardless of its physiological properties.

The advantages to be derived by its use were by no means so great as they should have been, and perhaps this fact, conjointly with that of the difficulty of obtaining a supply promptly, would explain its limited use until recently, in spite of its indorsement by such authorities on anesthesia as Turnbull in the United States, Richardson in England, and Dartee in France. Ethyl bromide is a colorless liquid, considerably heavier than water, boiling at 39° C., a temperature slightly over that of the body. The liquid is non-inflammable, has an ethereal odor, a sweetish taste, and possesses marked properties of local anesthesia produced by contact, as well as the general properties of analgesia with consequent anesthesia when inhaled. Ethyl bromide should have a neutral reaction with litmus paper. It should be kept protected from the air and from acting rays, for although not so easily altered as chloroform, it is nevertheless subject to decomposition, unless such precautions are taken.

No ethyl bromide should be used if there can be any doubt of its purity. I have had samples tested, bearing the marks of some of the prominent pharmaceutical chemists of this country, and have found impurities which condemn its use as an anesthetic.

I can indorse a preparation put up by Dr. Goesmann, having

used it myself, and knowing that all his products are tested physiologically before leaving the laboratory. The impurities of ethyl bromide may come either from the process of manufacture or from decomposition.

Among those found are free bromine, acetone and phosphorus, in combined form. Some of the samples I have seen have been even yellow, and some showed a deposited sediment in the bottom of the bottle. Purity must be assured, then safety, and the best results are practically certain. As a caution, note carefully that no other organic bromide be furnished in place of ethyl bromide. Too many fatal errors have been committed by a substitution of similarly named substances, through the criminal ignorance or carelessness of the pharmacist.

Its physiological properties, quoting from Dartee, von Ziemacki, Malherbe: Applied to the skin or mucous membrane, ethyl bromide has a slight vesicating effect; the skin reddens to a perceptible degree, and is warmer to the touch than the surrounding parts not subjected to treatment. In a few minutes the phenomenon of local anesthesia appears, probably induced, as far as the skin is concerned, by the rapid evaporation of the ethyl bromide and consequent congelation of tissue, in manner similar to that of ether when applied locally with a Richardson pulverizer. The internal administration of ethyl bromide is accomplished to best advantage by its inhalation, and in this manner it has been administered in all experiments for the study of its physiological action, as hereafter described.

Ethyl bromide apparently effects a chemical union with the iron salt of the red corpuscle of the blood, to which we attribute the function of transporting oxygen. The ethyl bromide, when inhaled, seems to so unite with the blood as to prevent its taking up the oxygen, and to that extent becomes an agent of suffocation, similar in action to that of carbon monoxide. If this fact be borne in mind, it will be readily understood why a short administration of the anesthetic, even in considerable quantity, but interrupted by periods allowing of full respiration, would portend no danger to life, whereas a continued and protracted inhalation of this same substance might so saturate the blood as to reduce its oxygen function to a degree dangerous, and perhaps to a point beyond recovery. This fact seems to have been ignored by the early users of this anesthetic, who gave it by a continuous method, such as is used for chloroform and ether. The action of ethyl bromide upon the nervous system is one of great rapidity,

but in clearly defined stages. A very slight inhalation dilates the capillaries, probably by action on the vasomotor, producing profuse perspiration, and stimulates all the secretory glands.

The peripheric nervous paralysis evinced by the congestion of the capillaries is now followed by the regular symptoms of an ascending nervous insensibility. The sense of touch still remains, but of an analgesic nature; that is to say, that, although there is perfect knowledge of the touch, there seems to be no appreciation of the force applied, the irritability of the skin totally disappears, and such a thing as a pin prick is only felt as a contact, not at all as a pain. The spinal reflex action determined by peripheric excitement is now abolished, and this phenomenon rises higher up the spinal ganglion.

It is particularly instructive, in experimenting with animals in which these nervous changes are accomplished with sufficient slowness, to observe how the motor reflex remains normal long after the peripheric sensibility is lost; that is to say, when the animal has reached this stage, it remains immovable when pricked or pinched, but if frightened by a rapid gesture, or by a noise, immediately struggles, its members endowed with perfect coördinate motion. The same phenomenon is easily seen in the human subject when in this stage of analgesia, for while it is then possible to perform an absolutely painless operation, it is still possible to maintain a conversation with the patient, or that which is still more easy and fully as striking, to command the subject to execute any motion with a member, and it is immediately done, proving the maintenance of full control over the motor reflexes in spite of the loss of all peripheric sensibility and dependent reflexes.

As the peripheric nerve paralysis affects the corresponding reflex centers higher and higher up the cord, at a given time it is manifest that the cervical origins of the pneumogastric nerve are affected, and the respiration is for a moment arrested by a voluntary action of the subject, thus evincing the consciousness of the invasion of an exterior influence into this purely reflex center. The shock of invasion provokes the voluntary arrest of respiration, which is only momentary. The breathing is at once renewed, but is now deep and totally diaphragmatic, slow but regular. The affection of the pneumogastric centers is immediately accompanied by the phenomena of ocular reflex, evinced by the paralysis of the iris and its relaxation and consequent dilatation of the pupilla. At this moment a slight clonic muscular re-

action is possible, and the lines of the face harden, evincing the setting of the muscles in a general contraction throughout the body. Such a phenomenon is of very slight degree and of slight persistence. There is no convulsive action, and up to this point no trace of any effect on the central nervous system is manifested. And this is what is to be expected in a case of an ascending reflex paralysis, such as is developed by ethyl bromide. The action of the drug is now reaching the bulbous, and at this point its effect on the central nervous system commences. The pupil is dilated to its maximum, and there is no reaction to light; the eyes are fixed, their optical axes parallel, as a general rule; the respiration is deep, the cardiac beat slightly quickened and strong; peripheric congestion. There has been some ringing in the ears. At such a point the patient loses the power of the motor nerves, ceases to hear commands, becomes unable to obey them by a process of invading lassitude, and with a possible instant of mental excitement drops into unconsciousness, the last phenomenon of a complete anesthesia induced by ethyl bromide. If at this moment the administration of the drug is stopped, the unconscious condition persists only for a few minutes—three to seven—then gives way to a lethargic condition, in which a patient hears and understands what is said, and may feel the contact of an instrument. Little by little he reaches a condition in which strong command will obtain a motor obedience, and soon will come a reply to questions, but for some moments there is no perception of pain, and this sense is but slowly reestablished and fully regained only at the last phenomenon of recovery from the drug. As consciousness returns, the phenomena noted pass in inverse order, for we are dealing with the retrograde nervous tension, the return to a normal condition emanating from the central nervous system, down the spinal reflex center, through the sensory reflexes to the periphery, and at that point reaching the complete recovery to the normal condition. It is to be remembered that the motor reflexes are not lost until unconsciousness appears, but their recovery is slower than that of the central nervous system, for the reason that the drugged sensory nerves shut out all impressions, and until their recovery the central nervous system will not call into action its motor nerves. It is of exceeding interest to observe this phenomenon. Suppose that a patient is recovering from unconsciousness while the extraction of teeth is going on, there will be no motion made by the subject, unless such motion be commanded by the operator, until

a return to the normal conditions is so complete that the sense of pain (peripheric sensation) provokes a motor reflex. It is remarkable how long an interval there is between the possibility of exciting the motor reflex by an auditory sensation and that of obtaining any motion in response to the sensation of pain.

A review of experiments, the substance of which is outlined above, decided von Ziemacki to place in parallel columns, for purpose of comparison, some of the phenomena induced by ethyl bromide and those evinced when chloroform is used as an anesthetic. Such a tabulated form of statements is very striking, and is worth repeating. The conclusions are, in substance, as follows:

1. Chloroform acts on the intelligence, which becomes troubled; sensation of touch and pain remain unaltered. Ethyl bromide first acts on the sensation of pain; analgesia complete first of all; leaves the intelligence almost intact.

2. Chloroform causes strong excitation of the central nervous system. Ethyl bromide causes no wandering of the mind, no excitement of the central nervous system.

3. Following the chloroformic sleep is the relaxation of the muscles. Following ethyl bromide, a slight tonic reaction of the muscles.

4. Under chloroform then commence, successively, the weakening alteration and loss of consciousness. Under ethyl bromide, after the analgesia, the consciousness is lost.

5. Chloroform acts last of all on the sense of pain. Ethyl bromide acts last on the intelligence.

6. Chloroform does not stimulate the respiration during narcosis. Ethyl bromide stimulates respiration during narcosis.

7. Chloroform never causes any clonic contraction. Ethyl bromide sometimes produces clonic contraction during the narcosis.

8. Chloroform causes nausea and vomiting almost invariably after narcosis. Ethyl bromide is rarely followed by sickness or vomiting.

9. Recovery from chloroform depression and return to consciousness are as slow to appear as is the anesthesia slow to induce. The anesthesia and its recovery are both rapid when induced by ethyl bromide.

Malherbe, in terminating his report on the physiological action of ethyl bromide, concludes as follows: "The action of the bromide is much less toxic than that of chloroform; the dilatation of the pupil and contraction of the masseters appear rapidly.

The respiration, slow for an instant, increases in rapidity, and finally becomes irregular if the dose is prolonged and heavy. The muscular contraction disappears with the suspension of the anesthetic inhalation. The reagent determines a strong excitation of the excretory glands. Ethyl bromide seems to act as a stimulant on the nervous system, and particularly the vital centers. The respiration is threatened more than the heart.

Preparation and Administration.—Place the patient in as nearly a reclining position as possible. See that the neck- and waist-band are free, so that the patient can take a full, deep inhalation easily; the stomach empty, though that is not essential. Place a few drops of the ethyl bromide on a folded towel (one of large mesh preferred), and pass it over the nose of the patient to accustom to the odor. Immediately, upon the upper side of the towel, pour out about three grammes of the reagent, and rapidly reverse the towel; apply it closely to the nose and mouth, so that every inhalation may be taken through its meshes.

“For a moment the patient holds his breath, perhaps makes a slight effort to pull away the towel, at the same time swallowing in rapid succession the saliva which is secreted abundantly. In an instant a long inhalation is made, followed by others, especially so if commanded by the operator. The face becomes red, eyes fixed, eyelids difficult to raise with the finger, lines of face drawn, jaw set, and a general muscular contraction of short duration may be manifested. After five or six inhalations the patient has lost all sense of pain, but is still conscious. At this point we could begin operating could we continue the anesthetic. This is the time to begin operations outside of the mouth. A few grammes again poured on the towel and inhaled result in complete unconsciousness, if not already obtained with the first dose. Time, one-half to one minute and a half, seldom longer. Pulse rapid and strong, respiration deep and of about normal rapidity. The longer the drug is applied, the longer till recovery.

“For minor surgery, extracting teeth or nerves, opening abscesses, etc., I know of no better anesthetic. Easily applied, quick in action and in recovery. No scenting up of office, or hours spent in the administering and recovery of the patient from the nausea and vomiting generally accompanying ether or chloroform.

“As to the safety of the reagent, in investigating statistics where pure ethyl bromide alone has been used I find no fatalities, bad results, or after-effects. In my own experience, having ad-

ministered it to both old and young, people feeble in health as well as the robust, I have met with only pleasing results, and I find that patients take very kindly to it. Let me commend ethyl bromide not only to your notice, but your application."

International.

CLINICAL STUDIES ON SOME SUPPURATIVE DISEASES OF THE MAXILLÆ.

Discussion on Professor Boenning's Paper.*

Dr. M. H. Cryer: I was asked by the Academy to open the discussion upon this paper of Dr. Boenning's, and before doing so I wish to congratulate the Academy on having had such a paper read before it. As I understand it, the main point, not only in alveolar abscess, but in all abscesses, is to reach the part affected, and open it sufficiently. We can scarcely make the opening too large, and are thus able to remove not only the contents of the cavity, but its surroundings. In all abscesses, whether they be in the soft tissue or bone, it is not only the pus-cavity, that is involved, but also the surrounding membrane which used to be called the pyogenic membrane. In the soft parts we have this membrane; really, the line of demarcation between the healthy and the diseased tissue, or nature's attempt to expel the latter. It is well to go beyond this—go down to healthy tissue. As Dr. Boenning has said, it is impossible to evacuate large pus-cavities through the apical foramina of teeth. Here is a skull showing a central incisor surrounded by a large opening in the anterior wall of the process extending through to and involving the hard palate. To evacuate this pus-cavity simply through the tooth is impossible, although we have dentists by the hundreds who are constantly endeavoring to do this. I believe, as Dr. Boenning has said, it is better to raise a flap and take away the necrosed bone, both labially and lingually. Dr. Truman will recall a case that I showed him a few weeks ago, of a large palatal abscess which extended entirely through the alveolar process, so-called, and could be felt buccally. I say "so-called," because we have no true line of demarcation between the true maxilla and the process, and in this case the abscess extended up into the bone proper. In the treatment of the case I raised a flap and with a large-sized bur drilled out the diseased tissue from the palatal surface. I packed the parts

*Abstract in April number of BRIEF. See p. 201, et seq.

with the ordinary sterilized gauze incorporated with subnitrate of bismuth. In some cases this is not as irritating as iodoform gauze.

The doctor has spoken of disease of the antrum arising from a tooth, or from an abscess forming independently of a tooth, and passing up into the antrum. He speaks of opening into the antrum well and freely. I endorse this, but I have seen the anterior wall of the antrum cut away, the alveolar process thoroughly curetted, and the patient dismissed, but in a few months return with a discharge into the mouth. Therefore, we must look for more obscure causes than diseased teeth, or disease directly within the antrum. By clinical observations, and by dissections, I have traced abscesses within the antrum to the frontal sinus, and have shown on the screen photographs of specimens at the University which demonstrate, I believe, that infectious matter has passed into the antrum from abscessed teeth and out through the opening into the hiatus semilunaris, and from that through the infundibulum into the frontal sinus, and thence been communicated to the brain. I have seen cases of meningitis produced by diseased teeth. Then, again, I have specimens showing where the opening on one side of the frontal sinus has been closed, the bone becoming perforated, the infected matter has passed into the antrum, and teeth have been lost through disease originating in the frontal sinus and especially in the anterior ethmoidal cells. We should have to pass farther up and cut away the septum between the antrum and the nasal chamber. If the rhinologists of to-day find a suppurative condition in the nasal chamber and antrum, they advocate making an opening from the antrum into the mouth, and, instead of directing this infected matter through the nasal chamber into the pharynx, they drain it into the mouth, making it, if you will allow me to use the vulgar term, a "sewer." This is bad surgery. I think even rhinologists should be able to treat the nasal cavity, the ethmoidal cells and the frontal sinus, and treat them in such a way that they will not be compelled to turn this effete matter into the mouth. If the rhinologist will not do it, the oral surgeon must do it; we must not have this infection in the mouth.

I hoped that Dr. Boenning would speak of another class of chronic abscess as generally found to be difficult to treat. I refer to external abscesses of the lower jaw. In a case of an abscess opening upon the body of the jaw at the facial notch, concerning which all the attendants at the clinic of Professor

Garretson disagreed as to a diagnosis of tuberculosis, abscess from the submaxillary gland, or necrosed bone, the patient was brought here before the Academy. Dr. Jack examined the patient, and asked if a certain tooth was vital. I told him it responded to heat and cold, and I thought it was, but because of his question I drilled into the tooth and found the anterior pulp filaments vital, while the posterior one was putrescent. After placing the rubber-dam over the tooth, carbolic acid was pumped into the canal, and after working this for some time I found that the carbolic acid had gone down through the tissue. Cotton saturated with carbolic acid was packed tightly into the canal, sealed in with gutta-percha, and the patient dismissed. The carbolic acid oozed out of the opening near the facial notch, and did not cease oozing until the next morning. The patient recovered, and the trouble has not returned. I have two patients now under my care who for some time have had abscesses in this region near the facial notch. Each is caused by a devitalized tooth. In many of these cases, after the tooth is extracted and the parts within the mouth become cured, we still have a constant discharge externally. Dr. Boenning has given us the best way of treating, and that is, to make a free incision and find out what is the cause. If there is dead bone, remove it; if there is infection of any kind, remove it. I believe that is the radical and proper method.

Another case is that of a colored person who came to the University of Pennsylvania Hospital with a large abscess. She had been sent there by a surgeon to have a tooth extracted, or to have the teeth examined. The surgeon had operated externally by making a large incision, cutting down to and scraping the bone. He had treated the case for months without any cure. She could scarcely open her jaws. By digital examination I found that there was an impacted lower third molar, and that the upper third molar was occluding upon the overlying gum tissue. By using a curved probe I found that there was a cavity in the lower third molar leading to a putrescent pulp. This, then, was the origin of the abscess and the cause of the trouble. The mouth could not be opened sufficiently to extract the third lower molar, but there was room enough to get a small universal root-forceps over the upper molar. It was removed, which, of course, relieved the gum tissue from occlusal irritation. In two weeks' time the jaw was opened sufficiently to pass a No. 3 elevator between the second and third molars, and by giving

it a turn the latter tooth was removed. The socket immediately filled with pus, and by forcing peroxide of hydrogen into it disinfection was secured. I hope that by keeping this part clean the patient will get well without further operation.

Dr. Truman: Notwithstanding that my good friend Dr. Cryer asserts that many dentists treat alveolar abscess through the canal, I believe that no intelligent dentist, unless wishing to give temporary relief, would now think of treating alveolar abscesses universally in that way. Now, the idea that alveolar abscess can be relieved or cured, not be recurrent, by any such treatment is, to my mind, almost an absurdity. What is an alveolar abscess? What are the symptoms? What are the phenomena following it? It stands exactly in the same relation to tissue as necrosed bone does to the maxilla. It is simply necrosed tissue. You cannot remove the pericementum from the tooth any more than you can the periosteum from the bone, and have remaining live tissue. Consequently, in all alveolar abscesses there is necrotic tissue always present as an irritant, and, therefore, there must be a constant source of recurrent trouble. As Dr. Boenning has said, the only real remedy for alveolar abscess is to cut off the necrosed root. It is a great mistake to go on treating a tooth by pumping carbolic acid or other agents into the canal, under the supposition that that will cure the diseased condition. I hold that it is never done, and do not see how it is possible. One might as well inject carbolic acid into a necrosed jaw and expect to have a return to health as to attempt to cure alveolar abscess by that kind of treatment. You must get at the sequestrum of the necrosed jaw, and you must remove the sequestrum of an abscessed tooth.

As to the antrum, Dr. Boenning unquestionably is right when he says it is better to make an opening as large as possible, if necessary, the better to wash out the antrum; but he takes it for granted, apparently, that the teeth have nothing to do with it. In my experience I have found that in almost every case the teeth have had something to do with it. The direction in which an alveolo-dental abscess will discharge will depend entirely upon whether or not the tooth-root has very nearly perforated the antrum, and we all know that very many of the roots do. Now, pus always follows the direction of least resistance, and if that is towards the antral cavity it will pass into it. Unless that tooth be removed, there will be a constant discharge into the antrum. Either wash it out or curette it, you still have

the original cause, and I hold that in the treatment of all inflammations the cause must be found and removed; any other treatment is almost malpractice. There may be other causes of antral empyema, such as tumors and cysts, but if the cause is a dental one, and that is easily determined, the first essential is the removal of the tooth.

The President: As Dr. Boenning is anxious to leave early, perhaps he would like to answer Dr. Truman.

Dr. Boenning: I desire to call attention to a paragraph or two which seem to have been overlooked by the gentleman in speaking of treatment. I said, following the thought laid down in discussion of treatment of alveolar dental abscess, that "it occurred to me several years ago that if we desire to cure antral abscess, so-called, we must establish an opening sufficiently large to thoroughly evacuate the antral cavity, clear out the purulent material, curette the carious walls of the antrum, and to completely remove all pathological masses or substances." If there is a diseased root in the floor of the antrum, what is that but a pathological condition? Therefore, instead of discussing at random the theme of the subject here, it is plain that a pathological condition is any diseased condition, whether it affects a tooth, a bone, or a soft structure, and if that presents in the floor of the antrum, then it is amenable to the same line of treatment as the removal of a necrotic root in the case of alveolar dental abscess. I do not desire any one to imagine for one moment that in the treatment of cases of antral abscess I would have you open up the antrum, discharge its contents, remove the pus, and allow a necrotic root or roots, as the case may be, to remain. The speakers have merely misinterpreted the paper, which distinctly advocates the removal of the cause.

Dr. Truman: I understood Dr. Boenning to say that he thought it was almost malpractice to remove a firm tooth.

Dr. Boenning: A firm tooth, yes; by which I desire it to be understood a tooth which shall be to all intents and purposes a normally healthy tooth, free from pathological conditions. I will leave it to the discussion of the society as to whether a necrotic root is ordinarily firm or not.

Dr. Cryer: I would like to show a specimen from a white subject, with the roots, both buccal and lingual, of a molar almost penetrating the antrum. This, I believe, is the case in nearly all of the white race, but not in the negro or the Japanese, as far as I have been able to ascertain. We find the roots of the

teeth in this negro skull are far from the antrum. I believe that in the colored race we will seldom have the antrum affected by abscessed teeth, while in the white race we are much more liable to have it.

(Replying to question of Dr. Hickman.) I have not only seen the second, but first bicuspid root enter the antrum, and have seen a cuspid root in a position where, if an abscess were to occur, the infected matter could enter the antrum. A specimen at the University of Pennsylvania presents a condition where the apices of the roots of the teeth from the central and to the second molar, inclusive, are in the nasal chamber; in other words, the antrum does not come down into relation with the teeth, but is cut off above them, while the external wall of the nasal chamber passes over to the buccal side of the maxillary bone.

Dr. Jack: Mr. President, in my treatment of primary alveolar abscess, I must say that it has always been conducted through the canals, and in a large majority of instances the treatment of such has been successful after the complete disinfection of the canals and thorough flushing of the roots where this was possible.

With chronic abscesses my success has not been so pronounced, though in some instances, where I could get the passage of disinfectants through the canal and fistula, the treatment has been successful, unless there has been infection of a necrosed root. In one case, of a lower molar, there was an abscess continually discharging from the anterior root, though the canal had been correctly filled. The tooth at length became so extremely mobile that I felt convinced that the patient would lose the tooth, and so announced it to her. She replied, "I will not have the tooth removed, and you must cure it." I administered ether, and amputated the end of the root, which was necrosed. In a few weeks the part became entirely healed, and there has been no recurrence.

In my experience of forty years I have had but two or three actual cases of antral empyema—one about two years ago, and the other within a few weeks. The one two years ago occurred in the mouth of the wife of a physician. I had made application to destroy the pulp of a tooth, and had partially devitalized it, when the patient, on account of some physical condition, was sent by her husband to the sea-shore. While there the tooth became more seriously involved, the tissues became inflamed,

and when she returned, very shortly afterwards, there was evidence of empyema of the antrum. The tooth was extracted immediately. Her husband, being a surgeon, took charge of the case. He opened the antrum immediately posterior to the canine fossa, and after treatment of some weeks he entirely cured the case.

Another case occurred in a lady patient about four years ago. A consultation was asked for by the husband, also a physician. After careful examination of the teeth by the thermal test, I found them all to contain vital pulps, and I gave it as my opinion that the teeth had to be excluded as the cause of the disturbance. The case then passed into the hands of the rhinologist, who took charge of the case, as an extension of a purulent nasal condition. The patient recovered. In that case there was a large amount of discharge and very great foetor, but there was complete recovery.

Dr. Jeffries: I was a long time ascertaining the origin of the worst antral abscess I have had to treat. There was in the mouth a devitalized molar; on the same side one of the bicuspid was loosened, and the other was devitalized. After drilling into the molar, which I supposed naturally was the cause, and getting an opening through the lingual root into the antrum, I treated through it for some time. Afterwards I opened through the antral wall, and, though the condition was ameliorated, it did not result in a cure. I opened the bicuspid and found that was not the cause, and, as a last resort, I took out an old filling, which had been for twenty years or more in the canine tooth, and found that it was responsible for the abscess; yet there was not a particle of external evidence that that tooth was involved. There was no soreness manifested; but after that was treated, together with the opening in the frontal aspect of the antrum, a cure was quickly effected. In another case an abscess over the roots of the central and lateral incisors reached back to the center of the hard palate, where fluctuation could be distinguished. The treatment consisted of burring the necrosed bone and the apices of two teeth. The cavity, after several months of continuous treatment, filled up with granulations completely. The origin of the disturbance was in the central incisor, it having been devitalized and filled for probably twenty-five years. The treatment was tedious and recovery slow, on account of the physical condition of the patient, who was in poor health, but there has been no recurrence after cure was considered perfect.

Dr. Hickman: I went with a physician to see an antral case concerning which he wished to consult me. I asked him if he had extracted any of the teeth, and he said, "Yes, all the front row." I asked him why he did not begin with the other end. He said, "Those teeth have no connection with the antrum whatever. I would not extract those teeth for anything in the world." The patient had three upper molars on each side. I gave my opinion, which was not acceptable, and some time later I heard of the patient's death.

Dr. Darby: I think any one would infer from the paper this evening that all cases of chronic alveolar abscess required perforation of the alveolar plate. If that impression has obtained, I am certainly not one to endorse it. I know that a great many chronic alveolar abscesses are cured without perforation of the alveolar plate, and should be sorry to think that dentists were in the habit of performing the operation to cure ordinary chronic alveolar abscesses. Perhaps in many instances we might cure them as promptly, or more so, by cutting away the opening and evacuating what might be in the abscess cavity, but the ordinary cases we meet with, unless there may be necrosis, are amenable to escharotic and disinfecting medicaments. I saw, only a few years ago, a lateral incisor that had been suppurating for twenty years. The man said that every morning he pressed pus from a little sac on the mucous surface, and that was the end of it for that day. I opened the tooth and pumped wood creosote through the fistula. A cure was effected in twenty-four hours. I have seen the gentleman once a year since, and there has been no return, in spite of his sixty years and the fact that it was a chronic abscess of twenty years' standing. In the lower jaw we frequently meet with cases more difficult because the roots are more tortuous or more constricted. If we could pump medicaments through inferior molars, we should have less difficulty in curing. There are cases where I think we would do well to run a bur right through the alveolar plate and curette the diseased area, but in many cases there is no occasion for it. By filling these canals as thoroughly as I can, carrying a seton of iodoform gauze to the bottom of the fistula and letting it stay until it works out, I get healthy granulation from the bottom. Where there has necrosis of the root apex, the only thing indicated is amputation. I endorse the free opening of the antrum when opening is indicated.

Dr. James Truman: I think we ought to define our words

somewhat. Dr. Darby uses the word "cure." I do not quite understand how he can use that word in connection with alveolar abscess. I recognize the fact that by pumping in cresote or carbolic acid, or any of the escharotics used, we can produce a toleration with a necrosed portion, but I cannot comprehend how we can have alveolar abscess in any tooth and the pericementum retain vitality and continue to perform its function. The very fact that we have pus in a given cavity necessitates a separation of the pericementum and periosteum of the bone, and we have what is ordinarily called a sac. Does that periosteum or pericementum reunite with the tooth at that portion? Not if I understand the philosophy of repair in teeth, or anywhere else in the organism. It remains always as a foreign body.

Dr. Darby: If it lasts twenty years and gives no more trouble, it is then practically cured?

Dr. James Truman: I cannot call that cured, but the tooth is simply placed in a state of tolerance.

Dr. Register: I had a case of external abscess at the facial notch, which was as large as a hen's egg. The patient had been treated for some time by a surgeon, who had failed to establish a dental origin. I found a devitalized molar, cleansed its canals, and pumped 30 per cent. of sulphuric acid through then into the abscess tract. I treated externally with dilute iodine and chloroform. It was healing rapidly, when the patient called upon and convinced his physician that the trouble was due to a tooth. His physician acknowledged his error, and told him to have the tooth out, which advice was acted upon without first consulting me. As I had given the patient his choice of treatment or extraction in the first instance, my annoyance at the professional discourtesy was very great. I prefer the dilute sulphuric acid in these cases, because of its great solvent power over necrosed bone. One day, while performing an implantation of a cuspid tooth, to my surprise I entered the antrum. I merely changed the direction of my bur, implanted the tooth, and all went well. I have operated upon a cat for extensive maxillary necrosis, packing the wound with iodoform gauze, stitching the cheek, and paying no further attention. It recovered.

Dr. McCullough: I was asked several years ago by a veterinary surgeon to assist him in an operation on a dog. There was a fistulous opening on the line of the lower jaw. As he was

doubtful as to the cause of the disease, I, with a probe, followed the canal in the direction of the first molar tooth. I was not satisfied that there was a perceptible discoloration of the tooth, but, such a cause not being uncommon in our practice, I recommended the extraction of the lower first molar, which resulted in a permanent cure.

Another case was that of a man, thirty-two years of age, who, when a boy of fifteen years, had the edge of an upper lateral incisor broken by the sudden letting go of a brake on a horse-car. Several years later he began suffering from neuralgic pains throughout the side of the face and head. He was treated continually internally by physicians, and was sent to me by his last adviser when he was about thirty-two. I found the lateral incisor very much discolored, a swelling of the gum in front of the apex of the root, and a pulsating sac of considerable size on same side of the palate. I opened the tooth to prove my diagnosis, and, as the sac in the roof of the mouth was below the level of the apex of the root, I believed it impossible to force the contents of this sac up to and through the root by the apex. I, therefore, made an incision of about an inch over the swelling in the palate, when my lancet sunk in an opening of one-eighth of an inch in the palate bone. I then, with the syringe, forced different germicidal fluids through the root and out through the opening in the palate, and the reverse. I cleaned the tooth thoroughly and filled the root immediately with gutta-percha. I left a drain in the opening in the palate for several days. There is every evidence of an absolute cure. Two years have elapsed since the operation with no change.

International Dental Journal.



CONTINUOUS GUM WORK IN ENGLAND.

L. P. Haskell, Chicago.

After a sojourn of seven weeks in Berlin and Hamburg, and a week in London, I was sorry to learn how little attention was given to continuous gum work in either country, a method that produces the only perfect denture made, and which has, in my own experience, stood the test for forty-six years, as the strongest, most durable, most natural in appearance, most artistic, most agreeable to the tissues, and only cleanly denture ever made.

The usual objection of weight I do not consider a factor. If the plate is fitted to the jaw, has a fair adhesion, and, what is of equal importance, if the set has been properly articulated with the lower teeth, so that when the jaw is closed the set is not displaced, the patient does not realize whether it weighs one ounce or ten.

I am not surprised at this condition of things when I read in text-books and journals of the methods employed in constructing these dentures, and witnessed at Berlin some demonstrations at Ash's Dental Depot, which were neither mechanical, artistic or practical; in fact, it seemed as though an effort was made to show in how cheap and slipshod a manner the work could be done, instead of aiming to make the most perfect denture possible.

The material was mixed upon a slab with a long spatula, and applied to the plate about as a mason would apply mortar to the side of a wall with his trowel. After building up a rim upon the ridge of the plate (which showed the operator had no correct idea of how a plate should be formed in order to fill all of its requirements), he picked up pinless teeth, and proceeded to stick them into the putty-like mass, and after some inartistic trimming, placed it in the oven and fused. When cool, the enamel was applied and fused, and the result was pronounced a continuous gum denture. To be sure, he had shown how pin teeth could be used by soldering a wire to the plates. The whole was constructed upon a very thin plate and using the very low fusing materials, such as can be used with Ash's teeth.

I have found it in my experience, and base my success upon it, that the durability of this work depends upon the metal or foundation. Thin plates will not stand the strain of mastication, and there is not sufficient strength in porcelain, spread thin over a palatal surface, to aid at all, and especially is this true in the use of low fusing materials, which, when properly fused, are

nothing but glass. I have found the best results from the use of 28-gauge platinum, pure plate, no iridium. The posterior margin is doubled with thinner plate, 3-16 inch wide, extending around the tuberosities, with inner edge turned up very slightly to the top of tuberosities, to protect the margin of porcelain. This strengthens the plate, leaves a margin for relief, if needed at any time, and affords a thin margin to the plate. A thick, flat wire (round wire passed through the rolls) is soldered edgewise to the outer edge of the plate, strengthening the margin, protecting edge of porcelain, and finishing with a round, non-irritating edge, all of which is preferable to the turned edge of plate, either swaged or with pliers, a method slovenly in the extreme, and which cannot be done if the plate has been properly fitted in the mouth, to be worn as high as the muscles will admit, and especially over the cuspid eminence, where it can, and always should, be higher than elsewhere, and the gum fuller, in order to restore contour.

A continuous backing, made in three sections, lapping and soldered back of the cuspid teeth with a foot piece one-eighth inch wide, resting upon the plate, I deem an absolute necessity; very thin gold, 24k., placed under the foot piece, and a piece under each pin, as it is turned down over the backing, using no borax, will thus anchor the whole structure firmly to the plate, increase the strength of the denture, and prevent the teeth from being displaced by the shrinkage of the porcelain.

My preference has always been for Close's materials. It was he who perfected the original Allen's materials forty-seven years ago, a large amount of which was made up. When that was exhausted, he prepared a new formula, but somewhat lower fusing, and as low fusing as ought to be used. With these materials there are no enamel cracks, and the work can always be removed to a cold muffle as soon as fused.

Justi's continuous gum teeth are the best shaped teeth for this work that are made, with no blistered surfaces, as with some makes, and no cracking in the process of the work, unless from carelessness. There is a fine assortment of molds, some with lapping laterals. The bicuspid and molars are especially commendable, and the teeth can be altered to any extent by grinding, and yet, after the work is finished, they will have a finished appearance.

As to furnaces, I have used for two and a half years Custer's electric oven, the first electric oven ever made, with satisfactory

results. However, I saw at the London Dental Manufacturing Company's depot a new furnace, the "Jackson," which was tested in my presence, fusing the Allen body (the highest fusing) in thirteen minutes. It can be used with either the direct or the alternating current, requires no rheostat, and yet the heat can be turned on gradually or at once. It has a fire-clay muffle, shaped like the old style, and large enough for continuous gum work, and with shelf in front, little danger of wire fusing, and can readily be repaired. Inside the iron casing is a non-conducting substance, thus preventing radiation of heat, and saving electric energy, as also by non-use of rheostat.

An English dentist, writing upon the subject of continuous gum work, says his lack of success in his early efforts were owing to the use of fire-clay muffles! This is an extraordinary statement, in view of the fact that I never used anything else in eleven years' experience in carved block work, with very high fusing materials, and forty-six years' use of continuous gum work.

British Dental Journal.

THE INCREASE OF CANCER.

Those are startling words that occur in Dr. Roswell Park's article on "A Further Study into the Frequency and Nature of Cancer," in this week's issue: "If the present increase in the death-rate from cancer continues, ten years from now, *i. e.*, in 1909, there will be more deaths in New York from cancer than from consumption, small-pox, and typhoid fever combined." But that the statement comes from so worthy and conservative a source, one of our best-known American surgeons, who is besides recognized as a special authority on cancer, and whose investigations on the subject have added so much to our knowledge that was valuable and suggestive, we should be inclined to doubt the possibility of there being any truth in the sombre prophecy.

Dr. Park is not, however alone in his conviction that cancer is rapidly on the increase. The best English and French authorities on the subject are agreed that the affection is much more prevalent among their respective countrymen and women than it was twenty years ago. Billroth pointed out in the early '90's how rapid was the increase of cancer cases in recent decades in the Vienna General Hospital. Nothnagel, in 1897, confirmed this report for later years, and in the volume on "Intestinal Dis-

eases," in his system of "Specielle Pathologie und Therapie," reports a conversation with Billroth just before the great surgeon's death, in which they were agreed that the increase in the frequency of cancer was noticeable, not only among hospital patients and the poorer classes, but also in their private practice and among the wealthy patients. Nothnagel finds that the experience of the last five years has only confirmed this impression.

It is evident, then, how important a subject the etiology of cancer is becoming. State aid has been asked for its investigation, and it is clear that the object is an eminently proper one. A great question of public health, one that is every year becoming more urgent and serious, is involved. If, as Professor Park's investigations and his copious gleanings from medical literature all over the world seem to indicate, the cause of cancer is a parasite, its discovery and the investigation of its biological history would probably confer upon mankind one of the greatest blessings that medical science could bestow. The subject is a most interesting one to medical men, and while no effort should be spared to make the personal observations of every cancer case as complete as possible, so that it may be of scientific medical value, every member of the profession should encourage by every means in his power the present earnest effort to make the serious investigation of the etiology of cancer one of the great problems that our Empire State shall solve for her own and the world's benefit.

Med. News.

DEATH FROM BLOOD-POISONING.—The Deputy City Coroner (Mr. J. G. Hutchinson, Jr.,) held an inquest at the Bradford Town Hall on the 14th into the circumstances of the death of Ernest Douglas, aged 10 years, the son of a shoemaker living at 72 Sticker lane. The evidence showed that about a fortnight ago the boy was taken to a dentist to have a double tooth drawn. After the operation had been performed the gums bled a great deal, and became very swollen and inflamed. A doctor was called in, but the pain and swelling continued, and death ensued last Saturday. The verdict returned by the jury was to the effect that the boy died from blood-poisoning, but that the evidence was insufficient to show the cause.

The Dentist.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

ETHYL BROMID.

In this number of the BRIEF there will be found a reprint from the *International Dental Journal* of an admirably written paper by Dr. Dickinson, in advocacy of ethyl bromid as an anesthetic in dental and other minor surgical operations.

As is well known, the advantages claimed for this agent are its rapid action, with but little bronchial irritation, its quick elimination, and the speedy recovery of the patient with relatively little subsequent malaise.

Dr. Dickinson very properly lays great stress upon the necessity for using an absolutely pure ethyl bromid free from foreign contamination and from the products of its own decomposition, and admits that the difficulty of obtaining specimens of this character has not yet been fully overcome; although from personal experience he highly commends the ethyl bromid made by Dr. Goesmann.

Our own experience with specimens from the best manufacturers is that, notwithstanding the utmost care in sealing and excluding light, they all decompose in a few months' time, revealing by a yellowish tinge the presence of free bromin. Hence, it would appear that the bromin element is held in association with the ethyl radical by a somewhat feeble atomic affinity, and that its decomposition, even in a sealed bottle and probably also in the human organism, is only a question of time; in the latter case possibly of a very short time, for Dr. Dickinson agrees with what is now the generally received opinion, that with this agent prolonged anesthesia is dangerous, for the reason, as is claimed, that the ethyl bromid effects a chemical union

with the red blood corpuscles, with the result that their oxygen carrying power is impaired and partial asphyxia produced.

In view of the unstable character of this compound, and the well-known destructive power of free bromin upon all cell life, and its corrosive effect upon organic tissue, it may, perhaps, be regarded as a not unreasonable hypothesis that free bromin is sometimes the agent which produces untoward result.

Be that as it may, the administration of ethyl bromid is unquestionably dangerous, as was well shown in the well-known case of Sims, where the operation under its influence lasted one and a half hours, during which time between four and five ounces were used, with the result that after distressing vomiting, profuse choleraic intestinal discharges, smelling strongly of ethyl bromid, death ensued twenty-one hours after the administration of the anesthetic. The post-mortem showed that all parts of the body, especially the kidneys, were saturated with the drug.

It is true that both in this case and in that of Levis serious organic changes in the kidney structure were found after death, these unquestionably having much interfered with elimination; but the cases, nevertheless, demonstrated the toxic power of the drug so clearly and forcibly as, for a time at least, to greatly discourage its use. For this reason the total number of administrations thus far has been relatively small; the fatalities also have been few in number.

In 1892 Gilles (*Berlin Klin. Wochensch.*, Vol. XXIX) stated that in Germany ethyl bromid had been administered twenty thousand times without a fatality, and claimed that there was no recorded case of death from the agent when of demonstrated purity.

In the report of the London Lancet Commission, appointed to investigate the subject of the administration of chloroform and other anesthetics from a clinical standpoint, the fatality of ethyl bromid reported up to 1891 was two. To this must now be added the case of Gleich (*Wien. Klin. Woch.*, Vol. V, 1892); as must, also, the more recent case in Breslau of a healthy young

married woman, twenty-four years of age, who succumbed to the effects of 17.5 grammes of ethyl bromid administered through a face-mask by a dentist for the extraction of three loosely attached teeth. (See *Oesterreich-Ungarische Vierteljahrsschrift für Zahnheilkunde*, January, 1899.)

In addition to the above, the Lancet Commission reported three deaths from the combined effects of ethyl bromid and chloroform, one of which cases was dental.

In the synopsis of a report made to the Northern Surgical Congress held in Helsingford, August, 1898 (see April issue of the BRIEF) 794 anesthetics with ethyl bromid were given as without a fatality, but with asphyxia in three cases, and vomiting in thirty-nine.

As to the relative safety of ethyl bromid and chloroform, the latter agent has had, according to Lyman, a ratio of 1 death in 5,860 cases; according to Richardson, 1 in from 2,500 to 3,000 cases, while the ratio assigned to ethyl bromid by Hankel is 1 death in 5,228 cases. Like statistics in general, these figures are far from being infallible, and must be taken for what they are worth.

The facts as to ethyl bromid may be briefly summed up; it is an agent far swifter in action and much less unpleasant in its general effects than either chloroform or ether. Like chloroform, it depresses the circulation, and, owing to its interference with oxygenation, is far more dangerous than that agent for long operations; and less dangerous for brief ones, only because of its greater volatility and the consequent rapidity with which it is eliminated from the system. The absolute purity of the drug is essential to safety, but from specimens believed to be pure, because purchased through the ordinary channels from reputable manufacturers, dangerous and, in several cases, fatal results have followed. In view of these facts each practitioner must determine for himself the advisability of assuming the responsibility for its administration.

POST-MORTEM OPPORTUNITIES.

The study of the true pathology of alveolar and antral abscess rests under the disadvantage that the dental practitioner so rarely has an opportunity to demonstrate by post-mortem examination the exact nature of the tissue lesions with which he has to deal. Patients do not often die as the result of such affections, and when from these or other causes they have become possible subjects for an autopsy, it is not often that their friends or relatives will consent to the removal of a section of the jaw in order that the dentist may secure a specimen of an antrum or of a diseased tooth in situ. Could there be obtained, and examined with scientific precision, a sufficient number of specimens of this kind in cases which have resisted treatment, as well as in those apparently "cured," a sounder therapy, because based upon a wiser pathology, would be possible, and the conflicting views revealed in the discussion of Professor Boenning's paper (which discussion is reprinted in this issue of the BRIEF) would in a great measure be harmonized.

While the securing of post-mortem material is, undoubtedly, difficult, a much better showing could have been made had dental teachers and students more generally availed themselves of the opportunities afforded in the hospitals to which they have had access, and the dissecting rooms in which their anatomical work has been carried on.

It is probable that a large percentage of incurable cases in municipal and college hospitals have lesions of the kind in question which could be treated. In such cases, if the patient were without friends to claim the body, there would be but little difficulty in securing a post-mortem specimen.

While the material ordinarily obtainable in college dissecting room is usually without a recorded clinical history, a vast amount of invaluable pathological data has, owing to indifference or inertia, been allowed to go to waste.

It is gratifying to learn through Professor Boenning's interesting and valuable paper (reproduced in the April BRIEF) that he has availed himself of his anatomical room opportuni-

ties for securing specimens, and we trust that the profession at large may soon have the advantage of studying them, and the sections he has made in an illustrated paper from his able pen.

PROPOSED HISTORY OF THE DENTAL PROFESSION.

During the Centennial year a History of Dental and Oral Science in America was prepared and published under direction of the American Academy of Dental Science of Boston, Mass., with the view, as stated, of presenting in some suitable manner the claims of dentistry at the then coming Centennial Exhibition in America.

The work, considering the brief time afforded for its preparation (between December, 1875, and June, 1876) was of decided merit, and placed in a form available for reference much valuable material.

Nearly a quarter of a century has elapsed since its publication. As the years have gone by dentistry has not stood still, and all the great and significant changes which have marked its growth and progress await record in an authentic history.

At a meeting of the National Dental Association, held last year, a committee consisting of Charles McManus, D.D.S., of Hartford, Connecticut, Chairman, and Gordon White, D.D.S., of Nashville, Tennessee, was appointed to report upon the expediency and practicability of preparing such a work.

The desire and purpose of the Association is to make it complete and authoritative. To this end the profession generally are relied upon to coöperate with the committee by furnishing them with data, or by sending them the titles of books, pamphlets, manuscript reports, etc., bearing upon the subject, which they may have in their possession or of which they may have knowledge, and, not least in importance, by at once sending their subscription to Dr. McManus, so that the committee may be able to report upon the probable financial success of the undertaking.

Such a history would be a fitting legacy from the closing

to the coming century of dentistry, and we trust that the profession will give a generous response to the call of the committee.

A CARELESS PRACTICE.

Bernheim (*Jour. Amer. Med. Asso.*, March 18th, 1899), in treating of the effects of metallic mercury applied to the skin in the form of ointment, claims that the resultant systemic effect is not due entirely, if at all, to the absorption of the mercury after being converted into soluble forms by the action of skin gland secretion, but is dependent upon the vaporization of the mercury and its inhalation in this finely divided state. In support of this contention he cites the cases of persons who have been affected by salivation as the result of living in the same room with patients using mercurial ointment by inunction. Probably both agencies are operative. In view of these facts, the practice so common among dentists of mixing amalgam in the palm of the hand must be regarded as not without its possible evil consequences. Certainly squeezing the surplus mercury out upon floor or carpet, there to slowly vaporize or oxidize into air-wafted dust, is, to say the least, a careless practice.

CONSTITUTIONALITY OF THE PENNSYLVANIA MEDICAL LAW.

Judge Walling, of Erie, Pa., who last year in the case of the *Commonwealth vs. H. O. Gibson*, sustained the constitutionality of the Pennsylvania dental law, has recently rendered a decision upholding the constitutionality of the Pennsylvania medical law. As the court pronounces the two laws to be in the main similar, hereafter any decision adverse to the one must necessarily involve the validity of the other; an important gain in position for the dental act.

Legislation protective of the community against ignorance and charlatanism in all branches of the healing art is so essential to the public safety, and the dental and medical laws thus far

adopted have been so reasonable in their requirements, that, so far as we know, their constitutionality has been sustained in every court in which that question has been raised.

In Pennsylvania all that is now needed to fully establish the constitutionality of the dental act is a favorable decision from the Supreme Court secured upon a test case in which that issue alone is in question.

REVIEWS.

A MANUAL OF COMPARATIVE DENTAL ANATOMY FOR DENTAL STUDENTS. Prepared by request of the National Association of Dental Faculties, and adopted as a text-book for colleges August 27th, 1898. By Alton Howard Thompson, D.D.S., Topeka, Kansas, Professor of Dental Anatomy, Human and Comparative, in the Kansas City Dental College, Kansas City, Mo. Philadelphia: The S. S. White Dental Mfg. Co. 1899.

That dental students, as a rule, have not given to the subject of comparative dental anatomy that zealous attention which they freely bestow upon the, so-called, more practical branches is, doubtless, chiefly due to a false conception of what really constitutes the practical in education; but also, and in no small measure, to the fact that they have not had such a guide to the essential facts of the subject, freed from abstruse speculation or exhaustive details as Professor Thompson furnishes in the volume before us; for no matter how brilliant or instructive may be the lecturer, or how intelligent the student, there is always much which he will be unable to retain and assimilate into knowledge without the aid of a text-book to fortify his recollection and clarify and fix his conception of the facts formulated in lecture-room instruction.

There are, of course, many excellent treatises on the subject, notably that of Tomes, or those of Dall and Wortman in their elaborately illustrated papers in the American System of Dentistry. Here, however, we have the gist of the matter "boiled down" in a manner so workmanlike as to make glad the heart of the teacher. Nothing could be simpler than the arrangement of the classification of facts, nothing more clear than their presentation.

At the close of each chapter is appended a series of ques-

tions which, in the interrogative form, really constitutes a full analysis of its contents, thus affording to the student an invaluable help in testing his own knowledge by self-examination.

Another valuable feature is a reproduction of the list of terms and definitions in dental anatomy proposed and adopted by the American Dental Association, this constituting an excellent glossary for the work. It may be well in this connection to call attention to the definition of the term *Diphyodont* as "An animal having two sets of teeth, both the deciduous and permanent," in which the conjunctival "both" is a somewhat misleading pleonasm, conveying, at least to the uninstructed reader, the idea of a simultaneous rather than a successive occupancy of the alveolar ridge.

The work is enriched by numerous illustrations of great merit, not only from the educational, but the artistic, standpoint. As a really great man remains great no matter how homely his garb or outward seeming, so a really good book is superior to type and binding; nevertheless to the true book lover beauty of form enhances enjoyment, and thus indirectly quickens comprehension; for in the mental, as well as physical sense, we digest and assimilate best that which we enjoy most. From this standpoint beauty of proportion, of binding and of typography are not unessential details in the bookmaker's art, and both author and publishers are to be congratulated that these qualities are so fully represented in the volume before us. Its adoption by the National Association of Dental Faculties as a text-book for colleges is but a fitting recognition of its thorough adaptation to the purpose for which it is designed.

METHODS OF FILLING TEETH. An Exposition of Practical Methods which will Enable the Student and Practitioner of Dentistry Successfully to Prepare and Fill all Cavities in Human Teeth. By Rodrigues Ottolengui, M.D.S. Second Edition. With two hundred and seventy-three illustrations giving exact representations of all classes of cavities and their management. Philadelphia: The S. S. White Dental Mfg. Co. London: Claudius Ash & Sons, Limited. 1899.

Six years have elapsed since the first edition of this work was issued. The lucidity of its style, the excellence of its illustrations, and the general soundness of its teaching at once secured for it a place among dental text-books of recognized

merit, a position which time has not weakened, and which the appearance of this second and enlarged edition will still further fortify.

The author has not found extensive changes in or additions to the text necessary; some passages in the original work have been modified, and nineteen pages of new matter have been added, chiefly in the section devoted to methods of cleaning root-canals in which the use and utility of the Donaldson broach and bristle are explained, and the use of the latter in conjunction with Schreier's potassium sodium preparation commended. Very many of the new wood cuts, thirty-seven in number, found in the volume are illustrative of the study of tooth roots, and are a valuable addition to that section of the work.

For the filling of pulp canals Dr. Ottolengui still maintains his preference for gutta-percha, preferably in that form known as temporary stopping, a compound of gutta-percha and wax. Floss silk, dipped in chloro-percha, dried and cut in piece of suitable length is commended for use in those doubtful cases where, owing to pericemental complications, the withdrawal of the filling may be necessary, one end of the silk thread being allowed to project a short distance into the cavity for that purpose.

The text and cuts illustrative of the use of thin gold facings or "trays," secured by pins or loops on their inner surface, for the protection of oxyphosphate fillings from chemical or mechanical abrasion, which appeared in the first edition, have been reproduced in the second.

Dr. Ottolengui has been far more fortunate than many others with this method (first taught by Bing), if six years of experience have not somewhat weakened his faith in its general utility. To make and attach the device with exactitude is not nearly so easy as it looks and reads; indeed it is both difficult and time consuming, and when all is done it is unreliable.

When nicely adapted in positions where occlusive force is slight or well distributed over contiguous teeth the gold facing answers an excellent purpose, and will remain in position for many years; but when the thin metallic shell covers the coronal surface of a comparatively isolated tooth subjected to hard masticatory work, failure is only a question of time, for no matter how carefully the plate edge may have been burnished to the tooth surface, the force applied by the cusps of the occluding tooth will distort and push from position the edge of the thin gold plate, or else wear it through; erosive secretions and accre-

tions will penetrate to and disintegrate the oxyphosphate filling, and the operation prove a failure. In our personal experience the percentage of such failures has been so large that the method has been practically abandoned in favor of porcelain inlays or of fillings of plastic and gold in combination.

We gladly welcome this second edition of Dr. Ottolengui's work as an indication that, although many may take exception to its teaching upon special points, its general merits have not failed of a large measure of appreciation by the dental profession. Regarded either as a work of reference for the practitioner or as a text-book for the student, it is of that good wine which needs no bush, and is emphatically a work which every earnest student will find of value, and which no progressive dentist can afford to do without.

CORRESPONDENCE.

EDITOR BRIEF:—I was glad to see the article, in April BRIEF, from Dr. G. L. Ambrose, on "Amalgam with Cement Linings." It has appeared to me that dentists feared, from some cause, to try this plan, or if using it, feared to acknowledge it, since there was such complete silence in the dental journals for years on the subject after the plan should have been very generally known.

My greatest surprise, a few months ago, was to read one of Dr. Wedelstaedt's articles, wherein he declared that cement could not strengthen a frail wall of a cavity. I have waited for some one to join issue with him, but no one has done so in the four or five journals I read regularly. Dr. Wedelstaedt seems to have given much study to some mooted dental subjects, and gained great prominence in consequence. However, I believe nearly every dentist who has had much experience with cements will say the Doctor is in error, in this one thing at least.

I will say, also, that it is rather a serious matter for one who is accepted as an authority on such or similar subjects to teach what leads to such serious consequences. If followed on this point, thousands of teeth that I know could be preserved for, say ten to fifteen years, some twenty years, by refilling, necessarily fail in three or four years with any other filling. No doubt, many can be persuaded to have expensive crowns adjusted in such cases, but there are thousands of deserving people who cannot pay for the expensive crowns.

This brings me to another objection to cement linings, urged by Dr. Wedelstaedt. He speaks of any cement that may be detected at the margin of a filling with a magnifying glass as fatal to the permanence or value of such fillings. If such were true, I wish to ask, what justice is there in placing bridges and crowns in the mouth costing one hundred dollars or more, when they must rest on this same cement easily detected at the margins?

Dr. Wedelstaedt also declares that cement is not solid enough, under a metallic filling, to withstand mastication. Well, I can say I have seen thousands that did stand, and none that I believe were injured from lack of density in their cement foundations.

I have not made an amalgam filling in eleven years that I can remember, without a cement or a varnish lining. In some sensitive cavities I find it almost indispensable to have a cement lining for a gold filling, to enable the patient to have the gold welded sufficiently solid to stay in place.

With a cement of proper shade to match the tooth, a thin shell can be so filled that Dr. Wedelstaedt cannot determine five years afterward whether the tooth has cement in it or not. Yet, without cement lining, he, nor any other man, could have made a filling that would not have shown serious defects from the start. Without the cement there can be no assurance that a filling can be finished before the shell shows cracks that will make it worthless.

No doubt, hundreds are fully aware of all these facts and many more bearing on the value of cement linings for all metallic fillings, and I should have, by this time, supposed that the fact was so well established that nothing further need be said. But Dr. Wedelstaedt's denunciation of cements seems to call for this much at least.

W. E. Driscoll, Manatee, Fla.

OBITUARY.

Henry Howard Keith, D.D.S.

Henry Howard Keith, the only son of Amos B. and Katie M. Keith, was born at Salem, Mass., June 14th, 1847. He resided in Boston until the beginning of the Civil War, when the family removed to Chicago. After working a short time in a machine shop to learn the use of tools he was apprenticed to his uncle, Mr. A., of New York, who was a jeweler. In 1864

Dr. Keith went to Philadelphia and entered the laboratory of Dr. Chas. J. Essig. He made such rapid progress that when Dr. Essig moved his laboratory to Baltimore in 1868 he took Dr. Keith with him, and while there he met the lady who afterwards became his wife. After spending about two years in Baltimore he went to Newark, N. J., where he worked for Drs. DaCamare and Pinney until he was married, in January, 1871. His wife was Miss Nina L. Benteen, of Baltimore.

He came to St. Louis in February, 1871, and in the fall of the same year opened a laboratory. He was successively with Drs. Morrison, Eames, Park, McKellops and Lange. He attended the Missouri Dental College and graduated while with Dr. Park, in 1873, and afterwards held positions in the same college, in 1875-6, as Demonstrator of Mechanical Dentistry, and was Professor of Mechanical Dentistry from 1876 to 1879, inclusive.

Dr. Keith's talents lay in the direction of plate work, in which he had no superior, though he had a large practice in operative work. His heart was in his profession, and he spared neither time nor pains when engaged in a difficult piece of work; and the greater the difficulties the more he enjoyed overcoming them—in which he seldom failed. As an operator he was equally skilled, and was extremely gentle and considerate of his patients.

His chief characteristic seemed to be a desire to help the younger members of the profession. Everyone coming to St. Louis met with a pleasant welcome from him, and he always did what he could to advance them. His knowledge was given freely and heartily, and he was always eager to help or instruct others.

At Lake Minnetonka, in 1888, he contracted the liver trouble that finally caused his death. His summers, for seven years past, have been spent in Asheville, N. C., where he had a beautiful home. He also spent his Christmas and Easter vacations there, as the climate greatly benefited him. He returned to St. Louis in September, 1898, and though in very poor health, he resumed his practice. His health failed very fast, and his death was the result of peritonitis. He died January 26th, 1899, and was cremated at the St. Louis Crematory, as he had desired. His ashes will be buried at Riverside Cemetery, at Asheville.

As an instructor he was one of the few men who seemed capable of imparting his knowledge so that the one instructed could not fail to grasp the ideas of the master mind. He was a

member of a sketch club, and well versed in photography. For that reason he was an adept in illustrating his subject. His office was a study in itself for neatness, convenience, and all that was new in modern dentistry. His laboratory was equal to that of his office. He was considered one of the best Continuous Gum Workers in this country. All his work in this particular line had the finish of a master artist.

He was a man who was continually striving to accomplish something that would advance his profession. He was an active member of both State and city society, of the latter he served four years as Recording Secretary, and in 1882 was the President, and no better drawing card could be announced than the mere statement that Dr. Keith would either read a paper or give a talk on some dental subject. As a professional man he was a model. He was never known to speak ill of any professional brother so as to advance himself in the estimation of his patients. His professional liberality was one of his many good traits that should be observed by us all. He was always willing to assist any dentist, both financially and professionally, and nothing would give him greater pleasure than to impart his practical knowledge to any brother needing his advice. He was a frequent contributor to the dental journals.

JOHN G. HARPER,
WALTER M. BARTLETT,
JOS. G. PFAFF,
Committee, St. Louis Dental Society.

ANNOUNCEMENTS.

COLLEGE COMMENCEMENTS.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The forty-third annual commencement of the Pennsylvania College of Dental Surgery was held at the Academy of Music Thursday, March 30th, 1899. The address to the graduating class was delivered by Professor C. N. Peirce.

LIST OF GRADUATES.

New Jersey—George Algor, Gilderoy O. Burlew, Henry B. Campbell, Charles Henry Dunham, William Peacock Felch, Elizabeth Y. Hood, William D. Knecht, Franklin Rightmire, W. Reeves Robinson, Edwin D. Trimmer, Albert Knolton Wood.

Canada—James Agnew, Sidney F. Bridges, L. Isabelle Fleming, Fred. Herbert Johnson, Leigh Augustus Langstroth, Kenneth C. MacDonald, Charles P. Moore, Alfred C. Russell, James Fuller Shute, Thomas Thomson, James Edward White, Alexander W. Watt.

Ohio—George N. Bates, Ami Henry Gunther, David Franklin Strook.

Pennsylvania—George C. Bryant, Lloyd DeWitt Bickley, John William Biddle, George W. Boyd, John D. Benjamin, Ruth Bitting, Malcolm H. Barr, Wilson W. Bolton, George Ross Cook, Daniel Risher Crump, John Clyde Curry, George Reader Doan, Walter Daniel, Calvin Adair Davis, Thomas J. Evans, Richard M. Flaherty, Frank D. Geer, William Hecht, E. Vickers Hendrixson, Jr., Marks Kohn, Charles Eden Kantz, John Henry Keiser, Lemuel James Morgan, William H. Mohler, Lester Lamont McKay, J. Preston Metzger, Frederick Wallace Mace, John Calvin Nugent, Alice Maine Norton, Reuben Robert Picard, Charles Dewar Peterson, John Griffith Powell, Walter Clifford Richman, John Henry Ruth, Max Raff, William Elmer Richards, George Henry Spieker, LeRoy Delmont Shafer, Conrad Schroeder, William M. Stetler, Harry M. Sober, Stephen Allen Sturdevant, Jr., Julia Charlotte Wood.

Minnesota—John Brandt.

Vermont—Thales Dwight Bugbee, Robert E. Grennan.

Connecticut—Francis Burdette Crane, William M. Chandler, Frederick Charles Marggraff, Flora E. Upson.

Massachusetts—Fred. Wheeler Carroll, Harold Holmes Cleaveland, Erwin Elias Connor, Ralph S. Hunt, Francis Joseph Mahoney, Robert R. Royster, Guy C. Tower, Frank Thayer Waters.

Quebec—James Edgar Collins.

Germany—Anna M. Carstan, Carl Hubert DeLonge, Sophie Hullstrong, Julius August Theo. Krieg, Clara M. Loetschert, Martin Ignaz Wesseler.

New York—Albert N. Drury, Hattie A. Dean, Fred'k J. R. Dean, Richard Ellis, Arthur G. Hodge, Roy D. Marsh, J. Finley Wark.

Egypt—Leopold A. DeRosa.

Switzerland—Emil Frey.

Russia—Helen Fox, Sophia Korotkin.

Bulgaria—Annette L. Kowler.

Missouri—Victor Emanuel Koch.

Scotland—George William Laidlaw.
 California—Frank R. Miller.
 Jamaica—Justin Byron McCarthy.
 Ireland—J. Courtney Nedwill.
 Indiana—Benj. Austin Richardson, Jr.
 Kentucky—Thomas Dudley Renfrow.
 New Hampshire—Maurice Everet Sargent.

PHILADELPHIA DENTAL COLLEGE.

The annual commencement of the Philadelphia Dental College was held at the Academy of Music on Friday evening, April 7th, 1899. Professor Henry C. Boenning, M.D., gave the address to the graduates. Charles N. Reinig, of Montana, delivered the valedictory.

The list of the graduates is as follows:

Pennsylvania—Walter K. Ashton, Walter S. Bahner, Harry L. Chandler, Edgar D. Crawford, Edward H. Derr, Bessie A. Douglass, Henry D. Fischer, Charles R. Fundenberg, William C. Ginter, Frank J. Haas, Samuel S. Hess, Isaac B. Jacobs, 3d; Burdella G. Klinetob, Ralph W. MacDonald, Wilbur C. Marsh, Grant W. Osborne, Frank H. Paul, Charles E. Rose, James T. Savery, Martin E. Shannon, William C. Sharkey, Edward R. Smyth, Emil E. Steiner, William L. Stevenson, Edward D. Stout, Orie O. Tolles, Lewis J. Walker.

Aabama—Shelton C. Frederic.

Australia—Hubert F. Milford, Norman V. Pockley.

California—Robert T. Hall, Edward H. Morrison.

Canada—William J. Galbraith, Whitman S. Goodwin, Arthur V. Jolliffe, Thomas L. Larseneur, Harold Lawrence, Hardouin Lionais, John A. MacNeil, George A. Martin, Alexander Peacock, B. Frank Reade.

Colombia, S. A.—Alejandro Andrade, Jose B. Calvo.

Colorado—Burton M. Vandervoort.

Connecticut—Edmund J. Abbott, William O. Beecher, Manuel J. Brazil, Christian C. Schneider, Walter B. Shaw, Charles F. Wilbur.

Delaware—Louis E. Gieser.

England—Frank H. Goddard.

Germany—Ernest A. Zoberbier.

Hungary—Hugo Herz, Raph (Rudoph) Herz.

Italy—Angelo Chiavaro, M.D.

- Jamaica—Clara A. Edwardes.
 Louisiana—Oliver L. Brand, Sidney V. Vega.
 Maine—Forrest A. Cousins, Edward A. Sprague, John B. Winslow, Frank L. Davies, Allie N. Osgood.
 Massachusetts—James C. Kelly, John L. Mansir, William P. Stone, Edward H. Smith.
 Michigan—E. B. Newell.
 Montana—Charles N. Reinig.
 Natal, South Africa—Arthur A. Walsh.
 New Jersey—George H. Griffith, Seymour L. Landon, Samuel G. Newcomb, Francis H. Tomlin.
 New York—Henry D. Bedford, Ira J. Coe, Charles F. Cornelius, William A. MacNicholl, Dorothy Maryson, Harold C. Parker, Perry Skinner, Charles H. Tilton, Raymond C. Turner.
 Ohio—William Z. Barrett, Charles B. Fickes, Josiah F. Knowlton.
 Oregon—Wilmarth I. Northup.
 Porto Rico—Conrado Rivera.
 Rhode Island—Zotique J. Payan.
 Roumania—Joseph Birnbaum.
 Washington—John J. Gribbin.
 West Indies—Chambille Gordon.
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THE STATE DENTAL BOARD OF MISSOURI IS UPHELD BY THE CIRCUIT COURT.

The State Board of Dental Examiners was upheld to-day by the Circuit Court in its refusal to issue certificates to dentists who held diplomas from unauthorized or illegal dental colleges. This fight has been going on in the courts for several years.

Charles C. Clark held a diploma from the Kansas City College of Dental Surgery, known as Atkinson's College. The State Board refused to issue him a certificate, and without that certificate he was not authorized to practice dentistry in the State. Clark brought suit in the Circuit Court to mandamus the Board and compel it to issue the certificate. Judge Gates decided to-day that the State Board did right, and in so deciding he said:

"The evidence introduced at the hearing of this case established beyond all doubt that the Kansas City College of Dental Surgery, known as the 'Atkinson College,' was, at the time Clark received his diploma, a most disreputable one; that it was engaged in selling diplomas, and that it did not require any

stated length of time of attendance at it in order to receive a diploma; that it even sent diplomas C. O. D. by express to parties in other cities who never attended it a single hour for the purpose of receiving instruction. It is also certain that this was known to Clark at the time, or at least sufficient similar facts to give him knowledge that it was not a reputable college."

The same decision was made to-day in the case of Sigmund Pollock, who had a similar controversy with the State Board.

Kansas City Star, March 11th. (Western Dental Journal.)

VERDICT AGAINST HIM.—JACOBS PRACTICED DENTISTRY WITHOUT HAVING A LICENSE.

Conviction was recorded yesterday in the case which applies to the dentists of the city who have not complied with the law requiring them to obtain licenses from the State Board of Dental Examiners before they are legally qualified to practice.

In the case of W. Jacobs, of No. 4651 Cook avenue, who was conducting an office in the Chemical building without a license, a fine of \$50 was imposed. W. W. Gardiner, a student of a St. Louis dental college, who conducted an office in the Century building, pleaded guilty, on condition that he would be allowed to withdraw his plea on May 15th, and have his case dismissed on the payment of costs upon the presentation of his diploma, which he expects to be awarded at that time.

To rid the community of a large number of dentists who were practicing without due qualifications for their profession, a law was passed two years ago requiring every dentist to procure a license from a State Board of Dental Examiners, to be established. A license was to be procured from them upon the presentation of a certificate from the State Board of Health, and the payment of \$1.

Since then no action had been taken in the matter, until Dr. Walter M. Bartlett, of No. 3894 Washington avenue, a member of the Dental Board, began to make inquiries. On January 5th, warrants were issued against Jacobs and Gardiner.

When the Jacobs case was called in the Court of Criminal Correction yesterday, a motion was made by the attorneys to quash, and this led to an argument as to the constitutionality of the law. Judge Clark upheld the law, and the trial began.

The evidence was that Jacobs conducted an office in his own name in the Chemical building, treated patients by himself, and

received the fees. The defence maintained that Jacobs was practically under the preceptorship of Dr. J. C. Cassell, of No. 2833 Magnolia street, and therefore exempt from the law. It later developed from his own testimony that there were days when Dr. Cassell did not go to the office, and that Jacobs practiced, nevertheless. Frank M. Brooks, of No. 2240 Clark avenue, had his teeth attended to by Jacobs, and he testified there was no preceptor present on that day.

The jury was out only a few minutes, when a verdict of guilty was returned. Jacobs will take an appeal.

Dr. Bartlett has the names of seventy more young dentists who are practicing without licenses, and he will proceed against them immediately. Attorney William Owens, of Clinton, Mo., is attorney for the Board. He declares it will prosecute every case where evidence can be found.

St. Louis Republic, Feb. 15th, 1899. (Western Dental Jour.)

RECENT PATENTS RELATING TO DENTISRY.

618009, Floss-holder for cleaning teeth, Wm. J. LaVarre, Washington, D. C.

617777, Dentist's mercury holder, Carl Schweizer, Philadelphia, Pa.

30035, Crown-piece attachment, Charles Rozell, Hutchinson, Kans. Design.

618324, Dental plugger, Robert Blum, Corpus Christi, Texas.

618166, Composition of matter for producing enamel for refixing dental plates of artificial teeth, Thomas Clarke, Interlachen, Switzerland.

618248, Antiseptic soap, Robert Ehrhardt, Augsburg, Germany.

618349, Disinfecting apparatus, John A. Heany, assignor to J. W. Douglass, Philadelphia, Pa.

618105, Tooth regulator, Miland A. Knapp, Minneapolis, Minn.

618421, Dental appliance, Israel S. Kirkwood, Chicago, Ill.

618690, Rotary tooth brush, Adriaan M. W. ter Laag, Philipsburg, St. Martin, West Indies.

619188, Cotton box for dentists, Israel S. Kirkwood, Chicago, Ill.

619226, Dental chair, Frank Riter, Rochester, N. Y.

- 620895, Vaporizer, Harley M. Dunlap, Battle Creek, Mich.
621154, Dental engine, Frederick F. Scholl, assignor to J. Hood & Co., Boston, Mass.
621565, Forceps, Malcolm L. Harris, Chicago, Ill.
622068, Mold for and method of making tooth crowns, Clyde S. Payne, assignor to C. E. Payne, New York, N. Y.
621873, Dental nerve broach, Wilhelm Vajna, Buda Pesth, Austria-Hungary.
621987, Dental disk holder, George E. Zinn, Chicago, Ill.
622467, Dental engine, Horace D. Hermany, Mahony City, Pa.
622359, Dental engine, John Hood and S. H. Reynolds, Boston, Mass.
622670, Tooth crown, Willis H. Dwight, Lemars, Iowa.
622948, Rotary tooth brush, Mary P. Gill, Louisville, Ky.
622922, Method of and apparatus for administering therapeutic electricity, Wm. P. Horton, Jr., assignor to Horton Electric Obtunding Company, Cleveland, Ohio.
623026, Dental chair, Adam J. May, assignor to F. Ritter, Rochester, N. Y.
622713, Antiseptic composition, Claude A. O. Rosell, New York, N. Y.

TRADE-MARKS.

- 32399, Receptacle for tooth powder, Thomas Hollis, Boston, Mass.
32479, Tooth paste, S. S. White Dental Manufacturing Company, Philadelphia, Pa.; Chicago, Ill.; New York and Rochester, N. Y.; Boston, Mass.; Atlanta, Ga.; Berlin, Germany, and Buenos Ayres, Argentina.
32654, Antiseptic in powdered form, Gustav A. Chandler, Chicago, Ill.
32703, Soap, dentifrice, and hair preparations, Comfort Powder Company, Hartford, Conn.
32702, Preparations for the mouth and teeth, Woodman, Davis & Co., Boston, Mass.



Questions and Answers *

Question 31. *What are the evil effects, systemically, from mercury in amalgam fillings, and is there any literature on the subject?*

There is no doubt that in the case of some patients, who are peculiarly susceptible to the toxic effect of mercury, unfavorable results follow the insertion of amalgam fillings; but to answer the above question in full would be to write a long and scientific paper. One of the most important arguments against amalgam fillings, made by those who object to the use of the material, and by those who have studied the subject, is that it is liable to interfere with the action of medicines administered in general treatment. It is also stated that amalgam is sometimes the cause of nervous affections, irritation of the mucous membranes of the mouth and fauces, indigestion, etc. To those interested in the subject I would mention Dr. Charles H. Taft's articles in the *International Dental Journal* for February, 1894, and June, 1898.

Dr. William D. Tracy, New York.

I do not believe that any evil effects to the system are produced by amalgam fillings, and I know of no authentic literature on the subject.

Dr. V. Walter Gilbert, Philadelphia, Pa.

There are no deleterious results from the use of mercury in amalgam fillings.

Dr. George Beecher, Philadelphia, Pa.

Consult a Homeopathic physician.

Question 32. *Do you advise that a tooth be devitalized before crowning?*

It depends entirely on the nature of the tooth to be crowned. If after preparing the tooth for a crown, I consider the pulp to be in danger of thermal shock, I would certainly devitalize, but I do not believe in the wholesale devitalizing treatment as set forth by some practitioners. I try to use the same judgment as I would in filling a tooth where the cavity extends into the region of the pulp chamber.

Dr. Gilbert.

In my own practice I find very few teeth with normal pulps that I feel need to be crowned with gold caps. In the use of other crowns devitalization is a foregone conclusion with few exceptions. When using a gold cap, if the condition of the tooth

*Address all questions for this Department to its editor, Dr. Henry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.

would permit an ordinary plastic filling without unfavorable results. I can see no good reason for devitalizing the pulp; but, on the other hand, if there were the slightest doubt as to the subsequent health of the pulp the tooth should, of course, be treated before crowning.

Dr. Tracy.

I use the same judgment in crowning that I do in filling, and if possible preserve the pulp.

Dr. George Rollin Beecher.

Question 33. *What do you consider the best method of cleansing a rubber plate?*

Scrub with a stiff bristle brush, using soap and tooth powder, and rinse with an antiseptic such as euthymol or listerine.

Dr. Tracy.

The black stain found on plates after use may be removed with naphtha, and then I use a 3 per cent. solution of hydrogen dioxide to sterilize.

Dr. Beecher.

I suppose you mean the best method for the patient. Tell them to give it a thorough brushing with cold water and sanitol three or four times daily.

Dr. Gilbert.

Question 34. *What is the difference between peroxide of hydrogen and the dioxide of hydrogen as supplied to us by druggists?*

The name peroxide of hydrogen as applied to the article in question is becoming obsolete. The chemical formula is H_2O_2 , therefore the proper name is hydrogen dioxide.

Question 35. *Which is the oldest dental college in the world?*
The Baltimore College of Dental Surgery.

THE INTELLIGENT REPORTER.

EDITOR BRIEF:—The following is an unique specimen of the work of the "intelligent reporter" for the daily press in handling the business of our conventions for the enlightenment of the general public:

"Perhaps the most interesting clinic of the day was that of Dr. G——. He demonstrated the use of alveoli in amputating forceps. By the alveola process he extracted fourteen teeth from a young lady twenty-five years of age. The feat proved so interesting that the chair privileged Drs. ——, —— and —— to discuss the matter. A committee of three, composed of Drs. ——, —— and ——, was appointed to watch the case, and to report to the publication committee in time for its publication."

J. M. W.

Practical Points.*

Picked Up at the New Orleans Meeting of the Southern Branch National Dental Association, February 9th-13th, 1899.

Immunity from Caries.—We can secure immunity from decay of the teeth, but it must be by local applications, local care and treatment. We must destroy the toxins which cause the disease.

J. Y. Crawford.

Antrum Treatment.—When it is a question between saving a tooth and being embarrassed by the presence of the tooth, it is better to sacrifice even a good tooth, if that will give assurance of satisfactory results.

L. G. Noel.

Advantages of Regulation by Means of Ligatures.—They take up less room than any appliance that can be devised; they are so easy in action that a child will tolerate them; a tooth can be rotated upon its axis without disturbing its relation to other teeth.

W. J. Younger.

Carbolic Acid in Root-canals.—After the removal of a pulp the use of carbolic acid in the canal will aid nature in closing up the apical foramen. There is nothing like sterilized coagulated albumen for the protection of the periosteal or pericemental tissues.

J. Y. Crawford.

Porcelain Inlays.—My experience leads me to consider the field of porcelain inlays rather circumscribed. If we were given a body of ideal tints and texture their use would still be limited, because of the nature of the material. I believe that the gold inlay, or cast filling, is applicable in nine cases where the porcelain will answer for one.

Wm. V. B. Ames.

Formaldehyde for Relief of Sensitiveness at Cervical Border of Molars.—From personal experience I can say that from $\frac{1}{3}$ to $\frac{1}{2}$ per cent. of the 40 per cent. solution of formaldehyde, in a mouth wash, greatly relieves sensitiveness at the cervical borders of the molars. If its use is omitted for a few weeks, however, the sensitiveness returns.

L. M. Cowardin.

Acetanilide Used in the Blair Vaporizer.—Finding that patients objected to the use of iodoform by vaporization in the treatment of root-canals I began to experiment with other drugs, and settled upon acetanilide, which I have used for several years

*Compiled by Mrs. J. M. Walker, Bay St. Louis, Mississippi.

with the most satisfactory results. It is free from objectionable odor, and is a perfect deodorizer.

T. C. West.

The Teeth and Life Insurance.—When the insurance companies examine the teeth as carefully as they now do the other organs of the body, and a man finds that his family may be deprived of the benefits of life insurance on account of the bad condition of his own oral cavity, he will realize, as never before, the importance of caring for his dental organs.

J. Y. Crawford.

Tin and Gold.—It has always been taught that tin must go next to the cervical border, the weak point, but for eighteen months I have reversed the practice, and I believe there is something in it. Tin next to the cervical margin turns black and looks like a line of black caries. There is not this trouble when the gold is put next to the border and the tin in the middle.

J. Y. Crawford.

Antrum Treatment Through a Root-canal.—I would rather devitalize a sound tooth, if necessary, and treat through the canal, than remove a bad tooth and treat through the socket. There is always more or less shrinkage and absorption after tooth extraction, and to preserve the opening and prevent food from opening it may be necessary for the patient to wear a plate.

J. P. Corley.

Platinum-Gold.—With a platinum-gold filling in a front tooth there is no display or glitter of gold; it is simply a restoration of contour, perfect in color and which will withstand any wear that may be put upon it in mastication. You can use platinum-gold if you have a little bit of skill. Why don't you use it, and do yourselves, your profession, and your patients the greatest good?

H. J. McKellops.

The First Permanent Molar.—These teeth are made up at a time of life which renders them peculiarly susceptible to caries. The grinding surface is frequently imperfect and presents a fertile field for disease, but under a protecting cover of cement the fissures calcify and the surface hardens; what was a virgin field for the implantation of disease germs, becomes immune if properly protected.

J. Y. Crawford.

Carbolic Acid in the Treatment of Erosion.—As the result of a series of observations extending over a number of years, I will say that there is nothing so effective in the treatment of

what we used to call spontaneous abrasion as carbolic acid. If the affected surfaces are kept clean—aseptic—and treated with carbolic acid, not only will sensitiveness be overcome, but erosion will be held in check.

J. Y. Crawford.

Hygiene and Dental Caries.—Whether the teeth are what is called “hard” or “soft,” by proper treatment they can be saved. If we can get the mouth in a healthy condition, and if the patient will second our efforts with the proper use of the brush and floss and antiseptics, then we can fill the so-called “soft” teeth with justifiable anticipations of permanent good results, provided the cavities are properly cut and the fillings properly contoured.

Laurence Leonard.

“Extension for Prevention.”—Extension for prevention has come to stay. We have learned that we must anticipate what may occur in the future. We no longer merely remove the actual decay; we penetrate the dentine—not to obtain undercuts, but to prevent recurrence of decay. We know what portions of the tooth are liable to be imperfect in structure, and where future decay should be provided against. Extension is for prevention, not for retention.

H. W. Morgan.

The Prolific Bacteria.—The possibilities of the proliferation of bacteria, if undisturbed and under none but favoring conditions, are inconceivable. Individually, their size may be compared with man, as in about the same ratio of man and Mont Blanc; and yet it has been calculated that the product of one bacterium, under none but favoring conditions, might, in four days, fill all the multitudinous seas of the globe! The mind cannot comprehend it.

W. C. Barrett.

Retention of Regulated Teeth.—The harder the teeth are to move, the more difficult they are to retain. In one very obstinate case—“a right central playing leap-frog with the left”—the tooth persisting in starting back to its original position after three months wearing a retaining appliance, with a sharp bistoury, all attachment between the tooth and tissues (but not quite to the apex) was cut loose; there was no further trouble.

W. J. Younger.

A Brief Statement of the Miller Theory of Caries.—Amylaceous food lodges in sulci or between teeth. By the diastatic action of the saliva it is converted into a form of sugar. This is infected by an acid-producing organism, which splits up the

sugar and leaves, as one of the by-products, lactic acid. In turn this dissolves out the calcic salts of the tooth, forming a hole or cavity. These are the simple facts, in the statement of the solution of the problem of the ages by W. D. Miller.

W. C. Barrett.

The Teeth and Life Insurance.—What a ridiculous state of affairs it is that if a man has a slight impairment in his power of hearing, a sight imperfection in one of his eyes, if he has a fistula in ano—he is rejected by the life insurance examiner; but he may have a dozen fistulas in the mouth, and they are given no consideration whatever. And yet there can be no question as to the deleterious effects of the constant accumulation and swallowing of the pus from these openings into the mouth.

J. Y. Crawford.

Restoration of the Enamel Surface.—After the lapse of years of usage the enamel is so affected by the contact of hard food substances and of acids, whether used as condiments or medicaments, that the surface is no longer normal enamel. Being so roughened it retains food *débris* and invites decay. But this disorganized disintegrated layer can be removed, and the surface polished and restored to its original brilliancy and smoothness, shedding extraneous matter like water from a duck's back, thus preventing decay.

W. J. Younger.

A Factor in Failures in Tooth Regulation.—The part played by the lower anterior teeth is an important factor in the regulation of protruding superior teeth. Failure to give the former due consideration is often the cause of failure to secure permanent good results. If entirely freed from occlusion, the teeth will be more likely to stay where they are put. The lower incisors and cuspids will often have to be shortened, drawn back, or even forced back into the alveolar process, or they may force the superior teeth forward again.

H. W. Morgan.

The Use of Silk Thread in Regulating.—There is a popular fallacy extant that sick thread, in common with other threads, tightens with moisture, but this is a mistake, for moisture does not contract silk. The silk must, at the moment of applying, be stretched till it will yield no more; then tie quickly. It is the contractility of the thread after being stretched that gives it its wonderful power. The silk should be well waxed; this increases its textile strength by uniting the minute fibers on the sides of the filament.

W. J. Younger.

The First Permanent Molars.—The mouth of every child should be thoroughly examined by a competent dentist before the sixth year molars make their appearance, and as soon as the crowns of these teeth are laid bare they should be washed and made perfectly clean—aseptic—and the surface covered with a good cement, so that all imperfections may be thoroughly sealed. With this treatment, and the teeth carefully watched, they will sometimes be good teeth for fifty years. If the cement washes out, renew it as often as necessary, until they have passed the period of susceptibility, and are immune to caries.

J. Y. Crawford.

Formaldehyde in Root-canal Treatment.—I have been using formaldehyde for over two years. I have seen no deleterious effects, but have seen apparently good results. In the ordinary dressing of root-canals I use 3 per cent.; in case of large foramen, only 2 per cent. I have used 6 per cent. with very good results where I had reason to believe the foramen was small and I desired to get prompt results. I have, in a number of instances, applied 10 per cent. to the putrescent contents of a canal without any injurious effects; of course, by the time the formaldehyde has permeated the mass of putrescent matter and reached the apical foramen its strength is very materially reduced.

Wm. Ernest Walker.

Bacteria and Dental Disease.—"The role of bacteria in the production of various diseases of the teeth is, of course, indisputable, and in dental pathology the classic researches of Miller rank with the studies of the greatest medical pathologists. The part played in the causation of caries, either by acid formation or by some other product, and the production of pulpitis, either by direct exposure or bacterial infection through the dentinal tubules, is fully established, and here, as elsewhere in surgery, there remains simply the work of studying the various agents which may be used to counteract these untoward conditions."

H. Stuart MacLean, M.D.

To Strengthen a Badly Decayed Root for Crowning.—Remove all the disintegrated dentine and enlarge the opening into the sound portion near the apex. Into one end of a platinum tube solder firmly a screw-threaded wire; cut a slot in the open end of the tube, and with screw-driver tap the apical portion of the root with the threaded-wire end of the tube. Remove by unscrewing, cover the threaded end with oxyphosphate cement

and screw firmly to place. Oil the outer surface of the tube to prevent amalgamation, and fill around it with amalgam firmly packed in. The root being thus restored to its original strength, is ready for crowning, the post and disk method being recommended, the post to be cemented into the tube, which is firmly anchored by screw, cement and amalgam. *H. H. Johnson.*

Test Sterilization of Cavities.—The cavity having been prepared as for filling and the tooth carefully isolated from cheek and tongue, the cavity was thoroughly dried. There was then introduced on a platinum needle a small portion of some food particle removed from the cavity and soaked in a 36-hour bouillon-culture of staphylococcus pyogenes aureus (or of bacillus typhosus). This was smeared on the bottom and sides of the cavity, which was immediately filled with cotton saturated in a 5 per cent. solution of formalin. At the end of five minutes this was removed and cultures taken from the bottom and sides of the cavity. Then 1 per cent formalin was placed in and the cavity sealed. After 24 hours (some at 12) the cavity was opened and cultures again taken. The great majority were sterile after the five minutes exposure to the 5 per cent. solution of formalin. The additional 12 hours exposure to 1 per cent. was uniformly successful. *H. Stuart MacLean.*

A New Method of Securing a Splint in Fractures of the Lower Jaw.—Impressions are taken and a rubber splint made for the lower jaw, with the occlusal surface corresponding to the morsal surfaces of the superior teeth. Before securing in position lines are sawed partially through the splint, but not reaching to the edges nor meeting each other, and not sufficient to weaken the splint to any great extent. This is done to facilitate the removal of the splint in sections after ossification is completed. Having the part properly adjusted so that the teeth will be in correct occlusion, with skilled assistance at hand, the inside of the splint is filled with oxyphosphate cement and quickly forced in position. A bandage is then applied, to hold the jaws in occlusion until the cement has thoroughly hardened, when the bandage may be removed, and the patient will be able to talk and eat with comparative comfort, and with very little disfigurement. To remove the splint, the severance of the sawed portions is completed with a drill in the engine, and the splint is removed in sections. Any cement adhering to the teeth, not

readily removed with instruments, may be dissolved by alkaline baths.

Jules J. Sarrazin.

Formaldehyde in the Sterilization of Dental Instruments.

—Twenty minutes immersion in a 5 per cent. solution of formalin affords perfect protection against infection, as proved by the following test experiments: (a) Into the crevices and serrations of various instruments cultures of staphylococcus pyogenes aureus and bacillus typhosus were plastered, after which the inoculated portions were rolled in a paste of tooth-dust and saliva. They were then placed in an incubator and dried; others (b) were dipped in bouillon cultures of the same bacteria and similarly dried. They were next immersed in a 5 per cent. solution of formalin and, after an immersion of from 5 to 10, 20 and 30 minutes were placed in a tube of bouillon (where size permitted) or cultures taken by scraping the instruments and stroke cultures made on agar agar. Results varied slightly from the 5 and 10 minutes immersion, but after 20 minutes they proved to be sterile in every case (with the exception of one tube of eight, probably due to accidental contamination). As the *débris* on the instruments used in these test experiments was very thoroughly dried and hard-caked, less time would doubtless suffice for instruments from which all *débris* has been mechanically removed before sterilizing.

H. Stuart MacLean, M.D.

Miscellany.

A Remedy for Seasickness.—A French physician recommends the use of spectacles with rose-colored glass as a remedy for seasickness.

The Ohio Supreme Court has sustained the State Board of Medical Registration on a mandamus case brought against it by an unqualified practitioner. This settles the question as to the status of illegal practitioners in that State and relieves the State Board from the annoyance of future similar mandamus suits.

Pensioner Regrets His Cure.—A Minnesota veteran, having given a public testimonial to a patent-medicine firm that its medicine has restored him to perfect health, is now trying to set himself right with the Pension Office, which proposes to take him at his word and cut him off the pension rolls.—*Med. News.*

Chicago Dental Charity.—The Chicago Bureau of Associated Charities has arranged to open a dental dispensary in each of its ten districts, the object being to furnish dental service to the poor at the smallest possible cost. Teeth will be extracted for ten cents.

Filling will cost from fifteen to twenty-five cents. The dentists volunteer their services and the material used is furnished at cost.—*Med. News.*

Formulæ for Flash Light Powders.—No. 1: Magnesium powder, 4 parts; potass. permanganate, 4; barrium peroxide, 2. No. 2: Aluminum powder, 5 parts; sulphide of antimony, 1; potass. nitrate, 2; potass. chlorate, 12. No. 3: Potass. chlorate, 5; potass. ferrocyanide, 0.5; sugar, 0.32; aluminum powder, 60.—*Apoth. Zeit.*

Another Accusation against Tea.—Tea and coffee are accused of producing many evil effects on the vital functions of the human body and doubtless with good reason. The most recent accusation against tea is that its continued use is a frequent cause of rheumatism, owing to the fact that its alkaloid, theine, inhibits the excretion of uric acid and urates, thus laying the foundation of the lithæmic diathesis.—*Russia Med. Jour.*

X-rays in Military Surgery.—Major J. Battersby, in a paper read before the Roentgen Society, London, January 10th (*Nature*), stated that after the battle of Omdurman, out of twenty-one cases in which the bullet could not be located by ordinary means, it was satisfactorily diagnosed as to position by the X-ray. The twenty-first case was too ill for the test. In many cases the patient was saved much suffering by this means. The motor power used was a small dynamo operated by a tandem bicycle, which answered admirably.

Recent Deaths Under Anesthetics.—A correspondent of *The Dentist* (February 23d, 1899) gives the details of nine deaths from anesthetics in England alone since the beginning of the present year. In seven of these cases chloroform and in two ether was the agent employed. The correspondent claims that these deaths were "all due to the variable and, therefore, uncertain and unsafe way in which the anesthetic was administered, without the slightest knowledge of the percentage of vapor which entered the patient's lungs with each inspiration.

Care of an Infant's Teeth.—Carriere (*Rev. de Therap. Med.*, January 1st, 1899) insists on the importance of looking after the teeth from the time a child is born. The mouth should be wiped out with cotton wet with Vichy water after each nursing. The gums should be rubbed with the finger wet in the following solution in order to prevent pruritus and to relieve the pain of dentition:

R.—Cocaine gr. ij.
 Saccharine gr. j.
 Glycerine ʒj.
 Tinct. vanillæ gtt. xxx.

THE
DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, JUNE, 1899.

No. 16

ORIGINAL COMMUNICATIONS.

INTERDENTAL SPLINTS FOR MAXILLARY FRACTURES.

*Rupert Beale, D.D.S.**

The frequent occurrence of fractures of the maxillæ and the difficulty encountered by the general surgeon in maintaining fixation of the bone, is one of the principal reasons why recourse is had in these cases to the dental surgeon.

Too much stress cannot be laid upon the importance of the treatment of fractures occurring in this region.

It is the professional duty of every dental practitioner to be correctly informed upon this special branch of dentistry. Dentists are liable at any time to be called upon to treat a fractured jaw, and when called should be able to intelligently and skilfully treat the case, either in coöperation with a surgeon, or alone.

Reference will not be made to the numerous splints available, but to some practical points in the treatment of fractures of the maxillæ, and to a simplified process for the speedy production of an interdental splint.

The correct diagnosis of a fractured maxilla is generally established with but little difficulty, as the following symptoms are usually present: more or less pain, particularly at the seat of fracture, in the effort to open or close the mouth; inflammation; swelling; crepitus; inability to masticate; displacement of fragments, with marked irregularity in the line of the teeth, together with contusion and laceration of the integument. There

* Instructor in Appliances for Cleft Palate Deformities and Maxillary Fractures, Pennsylvania College of Dental Surgery.

is also considerable salivation, with but little hemorrhage unless the fracture is comminuted.

In fractures of the superior maxilla, serious complications seldom arise; the parts offer little difficulty in treating, and generally heal rapidly, owing to the absence of movement in the jaw and freedom from attachment of any muscles likely to disturb the fragments. When the parts are carefully replaced, and retained in position, union takes place rapidly, owing to the great vascularity of the tissues.

The treatment requires the removal of any spiculæ of bone that might cause irritation, the readjustment and the firm retention of the fragments by some properly adjusted appliance until union is affected.

Fracture of the ramus, or of the condyloid or coronoid process, when difficult to diagnose, can be detected by passing the index finger well back into the mouth, and in conjunction with the other hand placed externally at the supposed seat of fracture, so manipulating the parts as to cause crepitus, which aids in detecting any fracture should one exist. Fracture of these portions of the bone is comparatively rare. This may be accounted for by the natural strength of the bone, by the protection offered by the muscles and integument, and by the ease with which the joint may be displaced, and thus break the force of the blow.

A doubtful fracture of the body of the inferior maxilla may be detected by grasping the jaw on each side with the index fingers introduced into the mouth and in contact with the occlusal surfaces of the teeth, and placing the thumbs beneath the base of the jaw; by gentle pressure first upon one side, then upon the other, there will be little difficulty in recognizing the crepitus between the fragments.

To ascertain the extent of injury to a fractured jaw, a careful examination of the parts should be made previous to taking the impression, by passing the fingers along the margins of the jaw to determine the presence of any foreign body or loosened pieces of bone. Loosened teeth, as a rule, should not be removed, for in time they generally become firm and useful.

If the looseness or dislodgment of the teeth necessitates their removal, a careful examination should be made by passing a probe into the socket or sockets, to locate any small pieces of detached alveolus; these should be removed. By so doing the

patient will probably be saved from a subsequent abscess. A too vigorous examination of the socket by probing is not to be recommended.

Prompt measures in the treatment of fracture should always be resorted to. The best treatment involves, primarily, an appliance which will bring about coaptation and permanent fixation of the fragments; and secondarily, such a fixation of the bone as will not interfere with the requisite dressing of any associated wound.

The best result will be obtained where the splint is introduced within forty-eight hours, or as near that time as possible. Delay is most unfortunate; inflammation is increased, and from the unnatural movements of the parted ends of the bone, soreness extended, thus adding to the chance of necrosis, and to the subsequent formation of pus, all of which tend to prolong the period of necessary treatment.

The advantages of a properly fitting interdental splint are, first, that the perfect coaptation and immobility of the fragments which it affords insures the best possible conditions for union of the fractured bone, shortens the time required for union, averts pain, and prevents the formation of pus at the seat of fracture, which, when formed, is apt to pocket in the soft tissues.

Second, it gives a complete restoration of the symmetry of the arch of the jaw, and restores the teeth to their normal occlusion, with a consequent avoidance of displacement by relaxation of powerful muscles of mastication.

Third, in cases of comminuted fracture embracing considerable of the alveolar and basilar portion of the inferior maxilla, necessitating the removal of the sequestrum, the interdental splint, when the remaining periosteum is not too badly lacerated, as is frequently the case from the passage of a pistol or rifle ball through the body of the jaw, is invaluable in supporting the fragments and maintaining the normal arch of the jaw, until union is effected by the process of granulation and calcification.

TAKING THE IMPRESSION.—As it is impossible to keep the fragments in perfect apposition while taking the impression, they should be held in as correct a position as practicable, avoiding, of course, unnecessary pain to the patient. To insure success, it is necessary to prevent too much movement of the fragments when the impression material is being moulded around the teeth and gums.

As the mouth usually cannot be opened widely on account of pain and swelling, the impression material should not extend much above the rim of the impression tray. This does not interfere with success, as the impression of the gums is required only a trifle above the necks of the teeth.

Modeling compound or wax are preferable for taking the impression, as in using plaster of Paris for this purpose the patient would be subjected to a great deal of unnecessary pain in removing it, especially when there are loosened teeth. There is also no little danger of their entire displacement when plaster is used.

In using modeling compound for taking the impression, it should be worked as soft as possible in order to prevent unnecessary pain, also to prevent further displacement of the parts. It should be first thoroughly softened in hot water, taken out and dried on a towel before it is allowed to be folded upon itself; thus preventing a flaky surface. It should then be kneaded over a flame to evaporate any remaining moisture, and then placed in a heated impression tray. Oil the surface of the compound going next to the teeth and gums by uniformly spreading a drop of sweet oil over its surface. Just before placing the compound in the mouth, it should be passed over a flame three or four times to soften the material. The surface of the compound being softer than the body, a sharp impression will result. Before removing, allow the compound to remain in the mouth until moderately hard. The oiled surface allows the compound to be removed without clinging to the teeth.

When the inferior maxilla only is fractured, the impression of the upper jaw should first be taken in order to reassure the patient. This impression is taken in the usual way.

When taking an impression of the lower jaw, an assistant should stand at back of the patient and hold the fragments of the jaw in position with both hands, the assistant being careful to place his index finger or fingers at the place or places of fracture to aid in securing a perfect joint, and prevent displacement of the fragments while the impression material is being pressed into position. If there is not much swelling, a piece of binder's-board, cut the shape of the chin and held under the jaw, will be an admirable support, while lateral pressure can be applied by the fingers to steady the fragments.

As useless manipulation of the fragments only causes un-

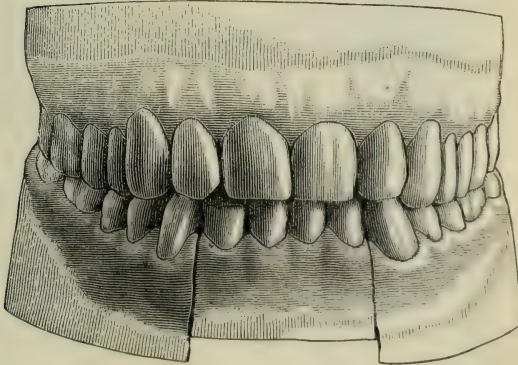
necessary pain, the attempt to restore them to place should not be made as a preliminary to taking the impression, but should be deferred until the final introduction of the splint.

It is imperative, however, that when taking the impression, the fragments should receive sufficient external support to prevent further displacement, but notwithstanding the care just mentioned, more or less movement will take place, which will be apparent when the model has been removed from the impression and examined. (See Fig. 1.)

FIG. 1.



FIG. 2



When it is necessary to remove fragments of bone, as in cases of compound, comminuted fracture of the inferior maxilla, which would impair or lessen the arch of the jaw, the impression should be taken before removal, as the fragments act admirably as a wedge to hold the arch of the jaw in position and thus aid in securing an accurate impression.

PREPARING MODELS.—Plaster models should be obtained from the impression and carefully articulated. This is accomplished by cutting the lower model apart with a small saw at the place or places indicating the fracture or fractures, and trimming enough plaster from the sawed surfaces to allow the teeth of the upper and the lower models to antagonize perfectly. This is well shown in Fig. 2.

FIG. 3.

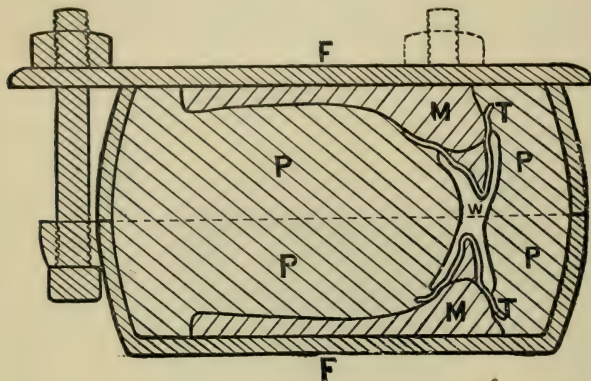
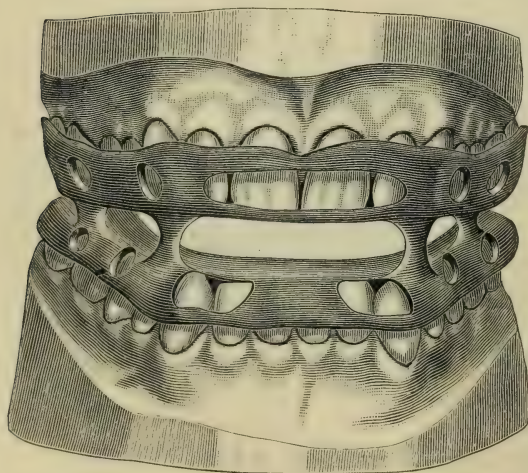


FIG. 4.



The usual marks of abrasion on the antagonizing surfaces of the teeth will be a positive guide in reconstructing the sections of the lower model. When this has been done, the sawed parts of the lower model should be held against the upper one by a

few drops of wax, and then immersed in water until well saturated. Then place freshly mixed plaster on the base of the lower model allowing it to penetrate the sawed surfaces to fasten the sections together. When the plaster has hardened, place the two models in an articulator.

The spaces between the individual teeth should be partly filled with plaster, also any interdental dovetail spaces should have their undercuts filled with plaster, so that the splint when finished, can be placed and removed easily. A quick way to fill the spaces between the teeth, and any interdental dovetail spaces, is to partly cut away the impression material which represents the spaces before pouring the model.

The space between the occlusal surfaces of the teeth of the upper and lower models should be from one-fourth to three-eighths of an inch, this being dependent upon the rigidity of the jaws and the amount of pain the patient would be subjected to on opening them. This point being determined, the set screw at the back of the articulator should be arranged to preserve the distance decided upon.

TO MAKE THE SPLINT.—Carefully cover every portion of the teeth and gums, about a quarter of an inch beyond their neck, with tinfoil, thickness No. 60. Burnish the tinfoil closely to every portion of the teeth on the models, so that there shall be no intervening spaces, then cement the edges of the foil fast to the models with a thin film of rosin and wax.

Over these tinfoil coverings the splint is made by moulding a layer of rubber the thickness of one sheet, allowing it to extend slightly beyond the necks of the teeth, but not so far as the tinfoil extends. The rubber should be softened by dry heat and pressed firmly against the tinfoil with the fingers, so as not to allow any intervening spaces for the intrusion of air, which if present would expand by heat and produce porosity. This can be avoided by giving the surface of the tinfoil a preparatory coating of liquid rubber (rubber dissolved in chloroform) about the consistency of cream.

Pass a warm spatula around the edges of the rubber where it joins the tinfoil to make a perfect joint. Then connect the rubber on the upper and lower models by placing two supports, quarter of an inch in width, on each of the buccal sides, made of two layers of rubber, one of them near the end of the splint, and the other at the cuspid tooth, sealing the joints with a warm

spatula. (See Fig 4.) While sealing the joints of the rubber, the spatula should not be heated sufficiently warm to burn it, as this will produce a flaky surface on the finished splint. If care is exercised, the rubber can be manipulated and shaped with a warm spatula almost as easily as wax.

The object of tinfoil is to have the splint, when finished, a trifle larger than the natural teeth, so that it will pass into position without binding at any point, and require no fitting in the final adjustment to the teeth. The tinfoil, by virtue of its thickness, will strip from the rubber in the finishing process, and leave its inner surface perfectly smooth and finished.

The rubber splint and the tinfoil covering now being one piece with the models, the whole should be immersed in water while in the articulator until the plaster is well saturated, after which the inner space between the models should be filled with soft plaster. If the casts should be removed from the articulator without the support of plaster between them, the rubber being soft and elastic the splint would become distorted. After the plaster has hardened, either saw or cut the models from the articulator, trim their sides and base, so that the whole will go into a vulcanizing flask.

FLASKING AND VULCANIZING.—Before flasking, saturate the models with water to prevent the formation of bubbles. A deep flask is required. Fill the lower section of the flask with soft plaster, place the models in the centre, and jolt the flask so as to exclude the air, and allow the plaster to come in contact with the rubber at every point; place the upper section of the flask in position and finish flasking. The flask does not have to be opened again until after the process of vulcanizing the rubber has been completed.

In vulcanizing, allow the mercury thirty-five minutes to rise to three hundred and twenty (320) degrees F. When this point has been reached, the temperature should be kept uniform for one hour. When the flask has been removed from the vulcanizer and has become cold, carefully remove the plaster and the tinfoil from the rubber.

FINISHING THE SPLINT.—In trimming, the rubber should be cut away so as not to infringe upon the gums, and the edges should be nicely rounded. After adjusting the splint to the teeth, there should be a line of tooth showing at the cervical margins so as to determine when the splint is in proper position.

The opening in front between the lateral supports should be large enough to allow of the free passage of a feeding tube, and should have the edges well rounded. The entire splint should be nicely polished, and no ragged or sharp edges left.

It is often advisable to make openings through the top and sides of the splint against each tooth adjoining the fracture to assist in determining when the fragments are in place. Openings should also be made far back on the sides so as to keep the mouth and splint in a cleanly condition, which can be done by syringing several times daily with a mild antiseptic wash such as borolyptol.

In cases where the inferior maxilla only is involved, it is not necessary to embrace the teeth of the upper jaw farther forward than the cuspid teeth. When the jaws cannot be opened widely on account of pain and swelling, this method allows more freedom for feeding, and is advantageous in determining when the splint is in position.

PLACING THE SPLINT IN POSITION.—Before adjusting the splint to the teeth, see that the fracture is reduced, and have the fragments carefully held in place by an assistant. The mouth is then opened as widely as possible, and the splint gradually worked into position upon the teeth. If the splint is placed in the mouth previous to approximating the fractured ends of the bone, considerable pain will be experienced by the patient in the reduction of the fracture through friction between the ends of the fractured bone.

Reduction can be brought about with the minimum of pain in the following manner: Support the fragments, slightly separate them, and then carefully bring into position—a thin-bladed instrument will at times effectively reduce the fracture if used as a lever between the teeth or fragments. If after the introduction of the splint into the mouth it fails to go entirely into position upon the teeth, a wise plan is to allow the splint to remain and retain the fragments in place regardless of their position. When this plan is adopted a compress should be placed beneath the base of the jaw which will exert direct pressure on the displaced fragments; it must be retained in position by a bandage. As muscular relaxation takes place in a few hours, the strain is lessened upon the fragments, and they gradually work into position in the splint. If the fragments then fail to go into place, the defect lies within the splint, and it should be removed and the

teeth allowed more freedom of movement by trimming its inner surface.

ADVANTAGES.—The advantages of the method of making a splint just described, are that a non-porous result is assured; that it consumes less time than the former method of first making a model of the splint in wax, flasking, parting the flask and removing the wax. It also does away with the subsequent tedious and uncertain operation of packing the rubber in the small crevices of the mould.

The simple nature of the process is very well shown by examining Fig. 3, where F represents the flask; M, the plaster models; P, the plaster investment; T, the tinfoil covering the teeth and extending beyond the edge of the splint, and W, the wax model of the splint. The dotted line across the middle of the flask shows where it is parted.

In the plan above described, the relative position of the parts remains the same, but W represents the rubber as built up upon the models and with them embedded in the plaster of the flask; no parting of and no packing in the flask is necessary.

Fig. 4 represents the completed splint as it should be when in position in the mouth.

BASE PLATE SPLINT.—A still quicker method of producing a splint is by the substitution of a double thickness of Head's base plate in place of rubber moulded upon the tinfoil covering the models. The surface of the tinfoil should be previously oiled to prevent the base plate from adhering to it. After being moulded upon the models, it is removed and carefully trimmed with a file and finished with sandpaper. This makes a strong, durable splint, and can be moulded and completed in less than half an hour.

The length of time required for wearing a splint is dependent upon the age and physical condition of the patient, and the extent of injury to the jaw. The average time is from three to four weeks.

ILLUSTRATIVE CASE.—To illustrate the principles above set forth, reference might here be made to a case occurring in my practice, reported in the *Dental Cosmos* for August, 1895. The case was a compound comminuted fracture of the lower jaw, caused by a pistol ball. The bullet entered the right cheek, passed obliquely downward, and striking the crown of the lower first molar, passed completely through the body of the bone,

driving the anterior root of the tooth into the basilar portion of the jaw and lodged in the tissues of the neck, causing in its passage the injury above described.

An examination of the mouth showed a perfect denture, with the exception of the first molar, which had been shattered; there was considerable laceration of the gums. The second and third molars were very loose, and leaning toward the tongue; crepitation and displacement were well marked.

Before taking the impressions, the jaw was supported and held in place by an assistant. As above stated, the fragments acted as a wedge, holding the arch of the jaw in position, and materially aiding in securing a good result. A splint of vulcanite was made upon the cast spanning the fracture, and holding the loosened teeth in place. It extended to the third molar on the opposite side and embraced the teeth of both jaws.

A day later, the splint was introduced and bandaged securely in place. After consultation it was decided to remove the fragments of bone. The patient was etherized, and the fragments posterior to the second bicuspid and anterior to the second molar removed. They included the roots of the first molar and part of the internal and external alveolar plates of the second and third molars, making in all, ten pieces of bone. The fracture proper measured at the alveolar border one and a quarter inches in length, and at the basilar border, three-quarters of an inch, and included one inch of the inferior dental nerve and artery.

The second and third molars were pressed into place; the wound was thoroughly cleansed, and the splint and bandage placed in position. As the parts were held quiet and in perfect apposition, the space rapidly filled, thorough union was accomplished, and the splint and bandage were removed in twenty-eight days. This was a very favorable result considering the great amount of granulation tissue required. The occlusion of the teeth was normal; and it is most interesting to note that the severing of the inferior dental nerve and artery did not result in pulp devitalization in any of the teeth, but merely in a partial loss of sensation for a short time on the right side of the face. After six years the vitality of the teeth still remains unimpaired.*

* For the use of Figs. 1, 2 and 3, author is much indebted to the courtesy of the publishers of Litch's American System of Dentistry, Messrs. Lea Brothers & Co.

REPLANTATION OUTDONE.

Will H. Savage, D.D.S., Clifton Forge, Va.

Five years ago I was called to see a lady who was suffering most intense pain from abscess of the superior lateral incisor, the crown of which was very badly decayed. The patient's face was much swollen, and the tooth quite loose. At the earnest solicitation of both the lady and her husband I extracted the tooth, which operation was followed by a discharge of pus and blood.

Nothing more was heard of the case until one year ago, when the patient called at my office to have other dental work attended to. I was much surprised to behold my erstwhile acquaintance—the abscessed lateral—in situ, quite serene. I was informed that three days after the extraction a neighbor suggested that they replace the tooth “to see if it would not grow back.” The tooth was carelessly washed and replaced. I found the root perfectly firm, the crown hopelessly beyond filling. I cut this off and put on a Richmond crown.

In December, 1898, both crown and root were found unusually strong and firm, there being no elasticity or vibration about them. Whether the union between root and alveolus is one of true ankylosis or not I do not attempt to say; but on examination of the tooth such would seem to be the case. Is not the success of this replantation passing strange when we note that no consideration was given to aseptic precautions?



ABSTRACTS AND SELECTIONS.

THE PREDISPOSITION OF CERTAIN TEETH TO
EARLY AND PERSISTENT DECAY.

By G. O. Rogers.

Read before the Pacific Coast Dental Congress at Portland, Oregon,
August, 1898.

Mr. President and Members of the Congress:

There is no profession in which the American stands *par excellence* in the European mind, except dentistry. They concede to the dentist the knowledge, science and manipulative skill that no other people possess. Not only this, but the practical, numberless and richly endowed mechanical appliances that have been conceived in the mind of the American and created by his skilful hand, have placed our profession in an enviable position, and the banner has been cheerfully conceded to us by all the world. We have richly earned this honor and it is right and just that we should enjoy it.

Without discussing the many reasons that have brought this about, I will mention only one, and that one pertains to the question I wish to present to you to-day.

Necessity is the mother of invention. A vacuum exists and there is a reason for it. Our environments are such that we should become almost a toothless race; hence the demand has peopled the country with skilful dentists. This fact seems established, that the American tooth decays far more than that of any other nation. The question naturally arises, why? If the above be true the question of honor to the American dentist is answered. But why the American tooth decays earlier, more universally and persistently than that of any other race is a question not so easily answered. Very many reasons and hypotheses have been advanced; each in itself having more or less merit, but altogether they have never seemed to solve the whole problem. To work up to the proposition I have in mind, I am obliged to refer more than perhaps is delicate, much more than I could wish, to my own personal work and observation. The true science of dentistry and the shekels it brought made my professional life endurable. I enjoyed the science, but detested the drudgery; yet I pursued the latter with as much faithfulness as

the former, for it controlled the ducats. During the fourteen years of my professional life in New England I lived in a watering place. Hence, besides my local work, I had occasional patients from Canada to Maryland, and from Illinois to the Atlantic seaboard. Thus I had a good opportunity to study the shape, structure and general character of the American tooth.

In order to extend my knowledge of the comparative anatomy of teeth, I collected, at least, one adult skull of every species of animal, wild and domestic, found in New England, with two exceptions, ranging from the bat to the moose. However, these two, I think, had become extinct, even then, in that region.

It was not difficult to observe that there were a great variety of shapes, peculiarly selected structures, densities, etc., each well adapted to its legitimate end. The carnivora, unlike the insectivora, the herbivora unlike the omnivora, and so on.

In all this there seemed to be two great laws that determined and governed these dental organs. First, in such complex highly organized structures, the law of natural selection and the adaptability to environment, which has suffered little change for ages in the above specimens, must be recognized as comparatively fixed and transmitted by inheritance. However, no two organisms are exactly alike, as President Jordan remarks there is in each individual of whatever species, "a divine initiative" which prevents it from being the slavish copy of any which have gone before. The survival of the fittest rests on the existence of different degrees and kinds of fitness; this it is the part of the law of variation to produce. The tendency of the law of heredity seems determined, resists all innovation, and if left alone would successfully combat all change. It is the law of persistence in a series of organisms. Throughout nature, each creature tends to reproduce its own qualities and those of its ancestors; "like begets like." Heredity is like the keel of a ship into which all framework is directly or indirectly linked. It is the great conservative force in evolution.

This law becomes so firmly fixed, in highly organized structures, that after another law or force which is quite as persistent, has, as it were, pushed heredity aside and so modified the tissue and organs, it meets the demands of a new environment and then the changed conditions become inherited by the offspring. Heredity often drags along into the changed conditions of the individual, outworn structures, and organs useful

in the early history of the race or type, now, not only useless, but often organs that are absolutely detrimental to the welfare of the race.

Along with heredity goes the law of flexibility or plasticity, a tendency to shape organs to fit surrounding conditions, as water or air fits the vessel or as clay is formed to the mold.

Environment creates want, want demands function, function requires cells and tissues to build up organs; the resultant organs to fill the proper mission for the individual.

I possess not the courage to speak of the first cause of things. Herbert Spencer says the first great cause is unknowable, but all phenomena are knowable. "All phenomena consist of matter, motion and the persistence of motion." However, let us take a short excursion towards the first cause, through well worn paths.

We find teeth, as well as other living organs, built up of tissue. Tissue of nuclei and cells. A cell, of myriads of molecules. A molecule of bundles of atoms. An atom of masses of hypothetical ether, which pervades all space, so attenuated as to be practically frictionless; existing perhaps under vibrations of inconceivable high frequency. It is possible, perhaps, that this ether is the parent of all existing matter. Difference of vibration making the sum total of all atoms, molecules, matter and worlds. If this, or something akin to it, be true, we can easily imagine how masses of attenuated frictionless ether, lessened in frequency of vibration, might be formed into one elastic atom, the birth of matter. Bundles of atoms, lessened in vibratory frequency form a molecule, so flexible, so plastic as to fit itself to any and all required tissues. Hence, if a change of environment should demand a change of an organ, in order that the life of the individual could be better served, the flexible, elastic and perhaps moldable nature of the building material would have a tendency to conform to the various demands. Out of this a change of structure would be possible; hence promoting the survival of the fittest, or the fittest to survive, making possible the great recognized law of evolution.

Again, this might run riot with highly complex organisms, were it not for the fact of the law of heredity holding it in check. Both are necessary for the highest welfare of the individual, and it would appear that when environments continue substantially the same for a long period of time, and these

two laws are working in harmony, the resultant tissue would be most kindly and firmly secured to build an organ which could resist innovation to the greatest degree.

It must be remembered that when a change has been accomplished in the individual, it is imparted to the offspring and becomes an inheritance.

President Jordan says, "the gigantic fact of sex with all its developments of parental love, conjugal love and filial love, and the resultant facts of variation and heredity, are expressions of altruism," which means the securing of the best to the community at large.

Armed with the above experiences and observations, during a period of fifteen years, I went to Hong Kong. First thought might lead one to suppose I had gone to the outer edge of the world, but quite to the contrary, for as it were, I was in the very focus, where well-selected examples of the vast civilizations of the world centered. During the ten years there, I did work for twenty-two different nationalities. Very early I began to note a radical difference in tooth structure. All human teeth are more or less subject to caries; it is the degree we are discussing.

When we know the cause of a disease we can treat it with much more intelligence. In fact, the battle is often half won. In due time the following fact was forced upon my mind, that the oldest races that had retained their same relative habits had the most enduring dentures. I believe the Jew possesses the best tooth structure of any civilized race in the world. Although migratory in habit, and found in every quarter of the globe, yet his religion has the tendency to compel him to retain the same habits of life, and so far as able, he surrounds himself with the same environments. For a like reason he selects his companion from among his own people, hence he is of the same stock now that he was over three thousand years ago. What has been said of the Jew as a race can be said, with equal force, of the Parsee or Persian race, possessing a tooth of solid structure. However, these people were old when Abraham lived. The prevailing disease of the Persians is a tendency to absorption of the alveoli.

The English, German and, in fact, all the older civilized nations of Europe, have better dentures than the American. The Chinese have strong teeth as well.

It seemed to me that in the end I could, with some degree of certainty, determine the nationality by the structure of the

tooth, by the touch and cut with the instrument. How far, however, it was difficult to determine, because the Jewish tooth was surrounded by the face of a Jew, the English an English face and speech, the American with the American face, etc. Yet I am convinced that with a more extended, painstaking, detailed, scientific study of the teeth, one might readily determine the nationality, to a reasonable degree of certainty, by the teeth alone. I will give you only two examples coming under my own experience as tests.

A lady came to have her teeth put in order. I knew her husband well, a "tea expert," an Englishman of the London type. The lady, to all appearance, was also English. In all her mannerisms, speech and general appearance she was English, especial English. When I came to examine her teeth I was quite surprised to see what appeared to me to be the American type tooth.

My mind said that this is simply impossible, and when I come to apply the instrument to prepare the tooth for plugging I shall find their general appearance has deceived me, the English structure will develop. It was of no use, the English tooth was not there, but instead the American tooth firmly stood its ground. It seemed that the Star Spangled Banner had been planted there and to stay. I had an uncomfortable sense and quite a feeling of inexcusable stupidity, that heretofore my observation had been so superficial. I clutched at the straw of engaging my patient in conversation, to detect, if possible, an expression, word or intonation of voice which might indicate an American origin; but it was of no use, her language and intonation were pure and undefiled London English, and so far the Union Jack stood firm. These facts grappled with and floored me. A chilly sense of defeat flooded my whole being. After the years of what I had thought was careful study, to realize that it had practically gone for naught, that I had overlooked facts, had missed the point, and must now either go all over this matter again, pick up the thread if it was there, or give over the study as a lost cause, a stupid failure. As a last resort in the struggle, I said to the lady: "Your teeth especially interest me. It is even a very curious case. I am quite at sea. They lead me into the dark." I emphasized the case to a point that excited her curiosity, and she asked: "Why do my teeth especially interest you?" I then told her of my study, and that her teeth had de-

feated me in it. "You are English, there is no doubt, but your teeth are purely and simply American, and I can make nothing else out of them." Her reply was: "Thank you, I am myself interested, and am pleased to say they are good, American teeth. My father and mother were New England people, I was born in Boston. At eight years of age I, with my parents, went to London, was educated there, married an English husband and remained in England until we came to China."

A warm glow of satisfaction followed this recital, and instead of degrading defeat, there was added one more valuable witness, confirming my theory. The second typical case I wish to present was also an Englishwoman. Her husband I knew quite well, a "tea expert." My patient was a blonde of the blondes, light sandy hair with a reddish tinge, light blue eyes, face and hands blotched with freckles. A typical, broad headed, English blonde.

Early I observed that my patient's teeth were English, but not of a decided type. However, under the instrument they behaved peculiarly, yielded differently, easier. They were not English, neither could I locate them as belonging to any type. I was in the dark, yet I did not feel as in the first case, that I had been plunged into a bottomless abyss. As it were the lights were turned down, I was traveling a road that ended nowhere. Somehow, I must know the history of this case. Hence, I began, so to speak, to creep carefully toward the margin, threw a line into the stream, and adroitly angled for an answer. It came. She soon asked: "Why are my teeth especially peculiar?"

As in the first case, I replied by telling her something of the history of my study. She frankly said: "I am sufficiently interested in your work to tell you that my father was English, my mother an Italian brunette. I was born in London, educated and lived there until I came to China. I was my father's child, favored his complexion and general character."

The above are typical examples out of several others, all of which, after ascertaining their history, left me on comparatively solid ground.

There was another class of people whose teeth were of immense interest in connection with this study. They were the Eurasians or half-castes. The general character of their teeth was specially white, clear and of delicate structure, predisposed to caries, and more, in every particular, like the American type

than any other I have met. Everything else being equal, they ought to be especially strong and durable, for the parents are of carefully selected stock; however, the reverse is the case. To illustrate, a German, English, French or American house in China desires a young man as clerk who is to remain, and if found worthy, in time, to become a partner in the business. Good pay is offered, a desirable future in prospect. The agent of the house in the East writes to the head office at home for a man to be sent out; any one of a thousand is glad to accept such a situation. Hence it follows that the home agent, being an intelligent man, out of those presenting themselves for the position, will make his selection with special care. It is natural, and the fact follows, that he should choose a healthy man of strong physique, a well educated and intelligent, cultivated gentleman. Of such the community is composed. After his arrival he looks about and concludes a mistress would be a desirable factor, and, too, rather the fashion. He finds as many Chinese girls from whom to select as one could desire. Having this privilege, it is natural to suppose he would select a healthy, well-made good-conditioned woman, and one with especially good teeth. This also is true. You will observe that both parents are admirably selected. The offspring from such parents should be well conditioned, strong and healthy, and as a rule I believe this is quite true. However, the girls are prettier, fairer and perhaps of a more delicate texture than are the parents. There must be some reason to account for their delicate, if not frail, tooth structure, subject to early and persistent decay.

One step further, I found the Eurasians in Manila with exceedingly bad teeth, no end of quite young people with a mass of decayed stumps. The parents of these half-castes were not as well selected. The male Castilian, as a rule, is of more frail constitution and a weaker physique. The Eurasian mother is the same. At this late date, the mother herself would naturally be a half-caste, and, as a rule, her teeth would probably average better than her offspring.

As has been mentioned, there must exist a reason for this especial deterioration of tooth substance, often frail, in these cases almost to an extreme. I do not wish to be understood that all Eurasians have absolutely bad teeth, but the general tendency is in that direction.

It gives me pleasure to present the above facts to this hon-

orable association of dentists, and if any member would direct his special attention to this interesting and perhaps valuable subject, and should pursue it in detail to a satisfactory conclusion, I should feel compensated for my labor. Looking forward to the work to be done, outweighs a thousand times the work in the past, in fact, we are only on the threshold of an eternity of knowledge in these matters.

Lastly, allow me to repeat, that there must be reasons or causes for all this. So far my conclusions are simply hypothetical. In order to make my idea more clear, let us return to the before mentioned English father and the Chinese mother. It must be remembered that both are representative of old races and, as it were, crystallized types. Hard yielding heredity, molecular plasticity, in each case, has established a firm, solid tooth structure peculiar to itself.

The whole diameter of the earth has been between them and their ancestors for centuries. Their environments, climate, food and general habits have also been dissimilar. The barriers of seas, oceans and continents, separating one group of individuals from other individuals of the same kind, caused them to be exposed to different influences. The reaction from environment is different in the one case from the other. President Jordan says each new individual and all the ancestors of his father as well as those of his mother are brought into a new combination. The process of molding of the hereditary characters of the two germ cells, male and female, to form a new fertilized cell, has as its essential function the promotion of variety. As a result the presence of barriers shows itself in specific variations. The change of the locality of animals and birds alters their structure to adapt themselves to their new environment. It has been noted that certain animals experiencing an extreme change, have been so much altered that their descendants can hardly be recognized as belonging to the same species.

To my mind, it is not unreasonable to suppose that the tooth substance of the offspring of these long established unlike persons should, as it were, refuse at first to become fully homogeneous, in other words that the enamel rods and dentine should lie more loosely together, or the tissue altogether of which the tooth is composed, should not be as firmly welded together as in the case of the parents. Hence it is less able to resist invading forces, and thereby more subject to decay. The old, firm

crystalline rocks, which time has welded together, yield less freely to abrading forces than a bank of firmly packed sand composed of the same rock, and even the newly formed sandstone yields more easily than the parent rock.

With the above examples in hand, let us return to the United States of America. Two conditions should be noted, first, our country is new and in many respects unlike the old whence we came. Universal environments are sufficiently unlike to produce a change. To repeat, all living tissues have a tendency to adapt themselves to meet changed conditions. When it is remembered that the great mass of people coming from the old world to the new, leave many of their habits and customs at home and readily adopt the new, it also adds to the readiness of change. We are also a cosmopolitan people, a mixed race, much given to inter-marriage. We consist of Cymric, Cornish, Anglo-Saxon, Anglo-Celtic, Norwegian, Danish, Norman, Teutonic, while modern anthropologists instruct us of an admixture of Palæolithic, Neolithic (American Indian), also Roman and Spanish, Jewish, Gypsy, Huguenot and Negro blood. This coupled with the first proposition, carried to a logical conclusion, would, if my hypothesis were true, account in a great degree for the fact of a higher per cent. of tooth caries with us than with any other race. The people of the United States are settling into a type, and it is reasonable to suppose that in the future, everything else being equal, the American tooth will be as strong and as well able to withstand innovations as are the best.

DISCUSSION.

Dr. S. J. Barber: I labor under a peculiar disadvantage in opening the discussion on this very able and interesting paper, in that I did not have an opportunity to look it over except the first five pages; and I very soon saw that any attempt at discussion on my part was useless.

Dr. Goddard: Mr. Chairman, Dr. Rogers has spent so many years in this study and has given us such an excellent paper that I feel it is worth attending the whole Congress to hear this one paper. It is so thorough, so exhaustive, I do not see what others can add to it; it is complete in itself.

Dr. Younger: Mr. President, while I have traveled a good deal, yet it has been chiefly for pleasure and health, and never for the purpose of practice or professional investigation. But, here is a gentleman of knowledge and travel, who has given

intelligent thought and observation to this subject, and therefore I believe that what he states is true.

Dr. Knapp: Mr. Chairman, this paper is the most interesting discussion of this topic I have ever heard. Perhaps the most important point connected with it is the closing clause, which removes the shutter, as it were, and allows the star of hope to throw its light through what has been to the average dentist a cloud of impenetrable chaos, and impressed us with the feeling that we were tending downward. That in spite of the best efforts of dentists we were doomed to reach a point from which there was no reaction, to become, in short, a toothless race. If the doctor's theory is correct there is hope that as we become a homogenous race, settled in type, the teeth will become consolidated, more permanent in character and less subject to the ills that now afflict them.

Dr. Cool: I can say in regard to this paper that it is worth coming to the Congress to listen to it, and it is worth the trip from California to Oregon to see that genial face. (Applause.) I am an American and a native of Oregon, and I am proud of it; and I felt more proud yesterday than ever before when I passed down the street and saw the beautiful girls in Portland. (Applause.) The change in the appearance of these young ladies some eight or nine years ago was so noticeable that I thought there must be some cause for it. That cause is found in the fact that boys and girls are taught to take care of their feeble bodies. The bicycle and physical culture have had much to do with it. It is a mistake to say that the American teeth are worse than they used to be. They are better, and improving every day; and in the best classes of society you do not see gold crowns on incisors staring you in the face—Klondikes in their cuspids and bicuspid. It is the province of dentistry to-day to prevent caries of the teeth. The predisposing cause of caries has been studied from the doctor's point, but there are other predisposing causes. I believe the greatest is nerve strain. There are more insane asylums in California than there should be in the entire United States. We have five, and it is pretty hard for a chap to get in. The American people have been subject to an intense nervous strain; children are forced in our schools to take up too many studies; their hours of recreation have been too few. Some time ago I had the privilege of listening to the teacher of a class in physical culture. There were in it one

hundred representative men of San Francisco, and as they appeared before this teacher his first remark was: "This body is the house we live in; I see before me nothing but mud-puddles." Two weeks from that time there was such a change in that class that in thinking of his remark one could not but wonder how such a change could take place. There is another predisposing cause of the decay of teeth. Strange as it may appear, syphilis is very prevalent. It is claimed by some writers that it is almost impossible to find a family in which there is not a trace of that dreadful affliction of blood poison. After a man has been to all appearances cured, the secondary condition may never again manifest itself externally, but there is a condition of syphilitic neuroses which is inherited by the child, and which the mother, a pure woman, will be afflicted with, bearing a child with a syphilitic taint. This subject is so broad that one must spend almost a lifetime investigating it.

Pacific Medico-Dental Gazette.

SCHLEICH'S MIXTURE FOR GENERAL ANESTHESIA CONDEMNED.

Henry J. Garrigues, M.D.

In the issue of the *Medical News* for November 12th, 1898, I published an article, entitled "Clinical Observations in Regard to General Anesthesia by the Schleich Mixtures,"* which I summed up by saying that the Schleich mixtures are easily taken; that they may be used in all cases in which general anesthesia is not contraindicated; that anesthesia can be induced in a short time and kept up with small amounts of the fluid; that there is little accumulation of mucus, little vomiting, and hardly any cyanosis; that there is no bad effect on the kidneys; that the heart is not much influenced by it, although somewhat weakened; but that there is some danger in regard to respiration; and finally, that it affects the patients much less than ether or chloroform. I, therefore, recommended this new anesthetic for general use.

I take it to be my duty to inform the readers of the *Medical News* that I have been compelled to change my opinion in regard to the safety of these mixtures. In the article I stated that the real danger with Schleich's mixtures lies in their influence on the respiration, and I reported three cases in which there had

*Chloroform, purified benzine and sulphuric ether.—ED. BRIEF.

been bad arrest of breathing, but in each case there was some complication which might be regarded as a mitigating circumstance. But now, within twelve days, I have had two similar occurrences in comparatively healthy women. One was a woman twenty-three years of age, in whom I extirpated Bartholin's glands on account of a fistulous tract remaining after an abscess. The abdominal muscles remained stiff, and when the anesthetist gave her more, she stopped breathing. She was immediately treated according to Sylvester's method, administration of oxygen, and pulling of the tongue. She recovered soon, but I then ordered ether to be given, instead of Schleich's mixture.

The other was a forty-six-year-old woman, whom I operated on for fibroma uteri. All her other organs were healthy, but she became blue in the face and stopped breathing. In this case I saw again the excellent effect of the new method of revival invented by a Frenchman (Arcachon?). It consists simply in moving the tongue forward and backward. This interrupted pulling forward has appeared to me to have a more immediate effect in reviving the asphyxiated patient than any other remedy I am acquainted with, and it can, of course, easily be combined with other measures.

Thus, having had five cases of dangerous respiration among little more than a hundred patients, to whom Schleich's mixture was given, I do not feel warranted in using it again, in spite of all its excellent qualities, and I hereby beg to revoke the endorsement I have given it verbally and in print. *Med. News.*

CASE OF A TOOTH IMPACTED IN THE LEFT BRONCHUS—GANGRENE OF THE LEFT LUNG—DEATH.

James S. Warrack, M.A., M.D.

Demonstrator of Physiology in the University of Aberdeen.

A woman, aged 26, was admitted to the Victoria Hospital, Burnley, on December 18th, and died on December 30th, 1897. She stated, on admission, that four days previously she was given gas for the purpose of having a tooth extracted. When I saw her she was lying on her back, with livid lips, and coughing in frequent paroxysms, but without expectoration. The coughing was much aggravated by attempts to speak, and by change of posture.

The left side of the chest scarcely moved at all on respiration. There were no breath sounds audible over the left side of the chest, with the exception of tubular breathing at the left apex, accompanied by small moist *râles*, and this was indistinct posteriorly. On the outside of the left nipple there was a small area over which a friction rub was audible. On the left side, from the level of the nipple down to an inch from the umbilicus and backward as far as the mid-axillary line, there was a well-marked area of hyperesthesia, which corresponded roughly to the distribution of the sixth, seventh and eighth dorsal spinal roots. The breath sounds were harsh on the right side, but otherwise normal. The pulse and respiration rates were much quickened.

During the next few days there was little alteration in the patient's condition, but the temperature assumed the hectic type.

On December 27th, thirteen days after the accident, there were well-marked signs of gangrene of the left lung. The breath was offensive, and there was expectoration of a brown and foul-smelling sputum. The lower cervical glands on the left side were enlarged, and there was a well-marked friction rub in the left axilla. Her condition became gradually worse until death occurred on December 30th.

At the necessary necropsy, on December 31st, 1897, I explored the trachea up to the larynx, but no foreign body was found there. All over the left pleural cavity there were numerous recent adhesions, and on separating these some grumous fluid came away from the lung. The heart was flabby and rather smaller than usual, and its right side was dilated. On cutting open the left bronchus the missing tooth was found. It was very tightly wedged in the bronchus, its point being downwards and the crown upwards, so that it had apparently acted as a "ball valve." It had almost ulcerated through the left bronchus, which, above the situation of the tooth, was congested and full of grumous fluid. On following the left bronchus into the lung there was found an irregular passage full of brown, foul-smelling fluid. The whole of the left lung was gangrenous and crepitating, and on squeezing the lung substance there exuded a fluid of the character described. The bronchial glands were enlarged, and there was also an enlarged gland at the root of the neck on the left side. Above the impacted tooth no bronchiole was given off, so that there must have been entire obstruction. The right lung was congested and œdematous, and showed commencing

consolidation at the base. There were two cavities in the left lower jaw, and into the hinder one the tooth, which was carious, fitted exactly, its direction being forwards and inwards.

This case seems to illustrate the effects of obstruction to a bronchus, as Dr. Sevestre has recently pointed out in the *British Medical Journal*, the early stage being collapse of the lung, and the latter inflammation, leading sometimes to the entire disorganization and gangrene of the lung. The tooth did not appear to have been tightly wedged in at first, when the patient was seen, but seemed to have become so owing to the incessant attempts to expel the foreign body, and with each attempt the conditions must have been aggravated by the suction in during inspiration. The gangrene would be excited both by the retention of secretion and by the introduction of septic material from the tooth.

British Medical Journal.

OLD AGE AND EXERCISE.

Exercise is essential to the preservation of health; inactivity is a potent cause of wasting and degeneration. The vigor and equality of the circulation, the functions of the skin, and the aeration of the blood are all prompted by muscular activity, which thus keeps up a proper balance and relation between the important organs of the body. In youth the vigor of the system is often so great that if one organ be sluggish, another part will make amends for the deficiency by acting vicariously, and without any consequent damage to itself. In old age the tasks cannot be thus shifted from one organ to another; the work allotted to each sufficiently taxes its strength, and vicarious action cannot be performed without injury. Hence the importance of maintaining, as far as possible, the equable action of all the bodily organs, so that the share of vital process assigned to each shall be properly accomplished. For this reason, exercise is an important part of the conduct of life in old age, but discretion is absolutely necessary. An old man should discover by experience how much exercise he can take without exhausting his powers, and should be careful never to exceed the limit. Old persons are apt to forget that their staying powers are much less than they once were, and that while a walk of two or three miles may prove easy and pleasurable, the addition of a return journey of similar length will seriously overtax the strength.

Dietetic and Hygienic Gazette.

NECROSIS FROM LACTIC ACID INJECTION.

Dr. J. M. Whitney, Honolulu, H. I.

Being personally acquainted with Dr. William Younger, of San Francisco, and having witnessed his skilful manipulation in the treatment of pyorrhea alveolaris, I have in many instances adopted his methods and treatment, and in the large number of cases with marked success; but in the following, was it a coincidence or the action of the remedy used that caused the trouble? My attention was first called to question the wisdom of injecting, by means of the hypodermic syringe, lactic acid between the tooth and process by noting the effect upon Mr. K., a teacher aged about fifty years, large and strong, weighing perhaps two hundred and twenty-five pounds. He had been suffering for some time with pyorrhea alveolaris. I had treated in the usual manner and had restored all the teeth to apparent soundness except the left superior cuspid. There seemed to be left about this a redness of the gums and a little swelling, though no discharge. As he wished to return to his school upon one of the other islands, I injected with the hypodermic syringe a small quantity of lactic acid pure. It caused him great pain, which lasted, with lessening degree, for several hours. In the morning after there was much swelling of the face. Antiphlogistic treatment was at once commenced, but it was not until after several weeks or months had elapsed, when there came away quite a section of process and superior maxillary bone, that full restoration was accomplished. I could not decide whether or not this was caused by the lactic acid or preëxisting conditions.

My next experience was with a Japanese gentleman, who passed through much the same experience as the case just mentioned, though with less pain, this latter being in the lower left first molar. It was not until a section of necrosed process was removed that comfort was restored.

Of these two mentioned I could not be assured but that previous physical conditions might have had something to do with the necrosis found.

The next two were above all suspicion. Rev. Mr. M. was suffering with pyorrhea alveolaris. All seemed to yield readily to treatment except the lower left cuspid. Around this, as the previous ones mentioned, I injected a small quantity of pure lactic acid. Pain was at once set up, and comfort did not return until a small portion of necrosed process was removed. The

last and most serious case was when I injected a small quantity of lactic acid about the anterior root of the first left molar of Miss H. Pain and swelling of the face, as in the other severe cases, were at once attendant. Antiphlogistic treatment being of no avail, I removed the tooth and cut away with the bur all the necrosed process that could be felt, yet the necrosis extended to the second bicuspid, which had to be removed, and, as in the case of the molar, all the roughened process was burred away. To-day, after two weeks from the last operation, I removed a large section of sequestrum, which I hope will bring comfort to the suffering lady. These four unfortunate experiences have taught me to be afraid of lactic acid injected with any force between a diseased tooth and its surrounding process, though I have no fear of applying it by a thin stick of orange wood or thin platinum carrier. Applied in this manner, in my hands it has proved a most valuable remedy.

International Dental Journal.

"A CASE IN ORAL SURGERY."

Dr. K. C. Young, Anniston, Alabama.

The patient when first seen was found sitting upright in a common split-bottom chair in a room in the rear part of a drug store, a young man some twenty-three years of age, wrapped in a sheet saturated with blood, and supporting in his hands a dangling, unshapely mass of bone and teeth; the whole side of his face torn out. He was an operator in a cotton mill two miles out in the country, from whence he had been brought in an open buggy over a rough country road, nothing having been done for him except a hypodermic injection of morphia and strychnine. He had climbed up a ladder to adjust a belt, one end of the ladder resting on a revolving shaft, the other on a slippery floor. The ladder had evidently slipped and he had fallen upon the machine with his mouth open. The right cheek was cut open from the inner canthus to the commissure of the lip, and from a point about over the glenoid cavity joining a cut about on a line with the *alæ nasi*; a deep cut straight across the upper lip just under the nose, and six or eight cuts or punctures upon the chin. The nose had a multiple fracture and was driven over to the left; the whole of the upper right maxillary bone had been cut and torn completely from the face and was hanging upon the chin

dangling by a small connection of gum tissue not wider than a lady's thumb nail, just over the lateral and cuspid. The bone had to be held to keep it from swinging about at each movement of the head. The cleft extended from the median line between the centrals along the line of articulation with the opposite maxillary, thence along the naso-maxillary articulation, to floor of orbit, thence across to malo-maxillary articulation, thence to spheno-maxillary foramen across hard palate from incisor foramen to articulation of palate bone with pterygoid process of sphenoid. Raising flaps of the wound in the cheek, the optic nerves could be seen and touched just as it enters into the sclerotic tunic; passing the finger down the pharynx the pterygoid process could be felt, rough and jagged where the articulation had been torn loose. The floor of the orbit was in plain view. The wound having been made as with a blunt instrument, was more of a laceration and wrenching apart, dragging the vessels out to their utmost so that when they broke they contracted as though tension had been made; the arteries had so contracted that they could not be taken up.

The mill superintendent begged me to save the bone, which contained all the teeth on the right side from the central incisor to the third molar, and including the tuberosity.

After many futile attempts I got the parts together, preserving the facial aspect, which was not unlike putting together a Chinese puzzle. To hold the bone up two ligatures were used, caught in the gum over the first molar, carried through the cheek and tied outside just under the eye. A wire suture was passed through the edges of the wound on hard palate, thence between the teeth to the opposite side. Three wires held the bone laterally, a wire was also passed from cuspid to cuspid, the bone being thus held up in three ways. The lower incisors were knocked out or broken off and the processes driven back so that the teeth pointed down the throat. This was replaced and held by wire. The bone of the nose was fractured in several places and the nose much displaced. After the fractures were reduced, rubber tubes the size of the little finger and ribbed were inserted into the nostrils, to hold the parts in shape and allow the patient to breathe through the nose. Forty odd stitches were taken in the soft tissue of the nose. In the corner of the lip a piece of tissue the size of the rubber crown on a lead pencil was hanging by a thread as it were, and almost black, but this was put back

in place and held with delicate stitches and served to restore the shape of the mouth. The external wounds were dressed with aristol, and a linen cloth smeared with simple cerate laid on, and absorbent cotton placed over this. The whole was done up with a Gibson bandage, and instructions given to syringe the mouth three times a day with a 10 per cent. solution of boric acid.

After the fifth day the patient began to improve rapidly and made a good recovery, coming to the office after the third week for treatment. The external wounds left a wonderfully small amount of eschar, the nose was perfect and he uses his teeth as perfectly as though they had never been out of his head. The teeth are sound and seem to be alive, with the exception of the third molar which exfoliated. There is a small opening in the hard palate, which will probably fill up in time. It has been greatly reduced by paring the edges of the break, stimulating granulation.

This case shows the wonderful recuperative power of the facial region. The ingenuity of manipulation, the familiarity with the minute anatomy of the parts, the realization of the necessity of strict attention to aseptics, fits the dental surgeon very peculiarly to attend to this class of accidents.

Dr. Walker stated that he had seen the patient some months after the accident, and that although the face was somewhat scarred, it was not badly; there was still a small opening in the hard palate which had not quite filled up. *Dental Register.*

KAOLIN.

William Johnston.

Now that this substance has become official in the British Pharmacopœia, a little information as to its origin and cognate uses will doubtless be appreciated by student readers. I do not mean those only who are preparing for examinations, but those also who are life-long students, with a perennial thirst for information. It will already be common knowledge to most that kaolin is a native silicate of aluminium. Its name is derived from Kau-Ling (high ridge), the mountain in China where it was first obtained, and where, I believe, it is still worked. It is also known as China clay, porcelain clay, and Cornish clay—the last indicating one of the world's principal sources of supply at

the present time. The purest variety, which occurs in minute, six-sided scales, and has the composition, $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$, is called "kaolinite." It is not likely that this could be supplied on the commercial scale.

Whilst waiting for a train, I recently had the pleasure of visiting one of the Cornish quarries at St. Austell. There is a series of them in a beautiful glen—some of them of immense size, and employing a large number of hands. Several thousands of men and boys are employed in the industry in the St. Austell district. At one of the works the annual output of dry kaolin is no less than 50,000 tons, and I am told that several others come almost up to this figure. The bulk of it is shipped from Charlestown, Penetewan, Par, and Fowey, and some is sent by rail.

Natural Origin.—Before describing the method of "winning" the clay, it will clear the way if the natural origin of the substance be first dealt with. Broadly speaking, it is derived from decomposed granite. There is, however, some difference of opinion on the subject, certain geologists, etc., asserting that the granite has, more probably, never been properly formed. Granite consists of three main conglomerated constituents, quartz, mica, and felspar. It is the last which is the important one from the China clay point of view, as it is that which decomposes into the clay in question. The kind of granite (called "pegmatite") which is most prone to "kaolinite" contains a larger proportion of felspar, and that of a more reducible nature than most granites. This felspar consists of aluminium silicate, with small and varying proportions of lime, iron, potash, and soda silicates; and the fact that felspar from pegmatite contains a higher percentage of the alkaline silicates than other felspar may possibly account for its greater reducibility. The cause of the decomposition (called "weathering"), which takes place under the soil and extends to a depth of sometimes as much as 100 feet, is surrounded by mystery. The same granite, exposed to air, is practically indestructible for ages. Professor Prestwich is of opinion that carbonic acid in surface water is the cause. He suggests that the CO_2 attacks the alkaline silicates, forming soluble carbonates, which are then gradually washed out of the felspar, leaving it in a friable condition. The aluminium silicate is not thus acted on, and so it remains stored up waiting for the quarryman. How many thousand years it takes to "weather" a hundred feet down into

the hard rock, I cannot say; but, at all events, the practicability of such a thing seems to show that the phrase "everlasting hills" is, after all, only an exercise of the poet's license. The "weathered" rock, which occurs in areas called "stopes," is of a greyish white color, and usually soft enough to crumble in the hand. In this condition it is known as China stone or Cornish stone.

The method of quarrying the material is something like this: A small proportion of the China stone is dug out and forwarded to the potteries for a purpose which will be referred to in a subsequent paragraph, but the bulk of the rock is "washed," that is to say, a stream of water is directed against it, in situ, by means of conduits, etc. The water, falling from a height and assisted sometimes by the quarryman's pick, gradually disintegrates the China stone, carrying the kaolin, in suspension, to a lower level of the quarry. Thence it is pumped up into settling-ponds, passing en route over a series of wooden obstacles which assist in grading the kaolin into different degrees of fineness and purity. The finest is allowed to settle in the ponds, which vary in depth from 6 to 12 feet or more. The water is then allowed to run out, and the semi-fluid clay is transferred, partly by manual labor, partly by gravitation, to drying sheds, furnished with brick floors, underneath which good fires are kept burning. When quite dry, the clay is ready for market, some of it being packed in casks, but most despatched loose, in lumps as white as snow.

The present f. o. b. price for best, dry China clay is about 24s. per ton. Medium quality fetches about 16s., and the mica or common variety about 11s. A royalty of from 1s. to 4s. per ton has to be paid to the landlords in whose property the quarries are situated, whilst a further rent-charge of so much per acre is made for space covered by the *débris* from the quarries. The latter item must be getting a considerable sum, as enormous mounds have accumulated near all the workings. These hills of *débris* consist mostly of quartz fragments, about the size of peas, which have to be drawn up to the top in small wagons by stationary engines. If they were located near London or other large towns small fortunes could be made from them by disposing of the quartz for concrete, garden walks, etc. Considerable care and ingenuity have to be exercised, especially in wet weather, to keep earthy detritus out of the washings, and the temper of the lessees is sorely tried at times by landslips of surface soil. I was much struck with the pumps used. Some

are driven by steam power, but most of them by enormous water-wheels, which are situated sometimes as much as a quarter of a mile from the pump. A rotating arm on the wheel moves a long iron rod, laid horizontally on greased rollers placed at intervals, and this rod in turn actuates the lever of the pump, the pull-stroke being assisted by the weight of a movable box of stones ingeniously placed behind the water-wheel. Enormous quantities of good white clay seem to me to be wasted. On the day I was there, the small stream running down the valley below the quarries was almost as white as milk. Some of this escaped clay is trapped lower down (by dam-dykes and side conduits), and sold as second quality, but a much larger proportion gets away and is lost.

The uses of kaolin are many. Probably the least important of them is the manufacture of phosphorus pills, as directed by the new B. P., and the most important the manufacture of pottery. I used to be under the impression that kaolin was used in the making of only the fine kind of crockery, called porcelain. That is a mistake; it enters largely into the composition of all our white dishes, or "pots," as they are still called in the Midlands. It will not be necessary for me to delve deeply into the mysteries of the ceramic craft, but a sketch like this would be incomplete without just a few outlines of the potter at work. In the first place, it will be news to many to hear that kaolin alone is incapable of forming serviceable vessels. When made plastic with water it will harden in the kiln, but the cup or what-not will possess no toughness. The reason is that kaolin is infusible at even the highest temperature of the porcelain furnace, and requires some fusible addition, such as flint or felspar, to give it cohesiveness. The China stone, reduced to fine powder, is sometimes used for this purpose. The chief difference between porcelain and ordinary white earthenware appears to be due more to difference in the proportions of the ingredients and the methods of their manipulation than to any extensive difference in the ingredients themselves. The following paragraphs from one of the text-books is of interest: "Sevres porcelain is composed of washed kaolin about 70, felspar 20, flint 10, and chalk 5 parts. When these have been reduced to very fine powder they are mixed and made into a paste with water. This is set aside for many months in a damp cellar to ripen, and afterwards trodden smooth by a bare-footed workman. A good workman at Sevres

can make only 15 to 20 plates a day, because this beautiful clay needs great care in handling; hence the costliness of porcelain. In the same time an English potter and two boys can turn out 1,000 to 1,200 ordinary plates." Before leaving the subject of pottery it should be noted that the kaolin-flint combination described above does not produce the finished cup or plate; it forms the "biscuit," as it is called, which has afterwards to be glazed—with fused felspar or other material. Kaolin enters into the composition of the ever-useful Wedgewood ware and of crucibles; and I fancy it is to kaolin that the whiteness of opal glass is due. It is employed in immense quantities for whitening and sizing or loading paper and calico; also for making "alum cake"—a plain aluminium sulphate, much used in dyeing. I believe a good deal of the metallic aluminium is made from kaolin. It is also employed in making white paint, for use in situations where lead paint is contra-indicated—where, for example, a paint is required that does not blacken, and is not affected by heat. Probably one-third of the total output of kaolin is used in pottery, and the other two-thirds for the purposes just enumerated, as well as several others not named. The following extract from Martindale's "Extra Pharmacopœia" will give an idea of its medical uses: "Prepared kaolin is a pearly-white powder, unctuous to the touch and free from grittiness." [This is the twenty-four shilling article.] "It forms a useful absorbent powder to apply to infants and to irritated skin. A perfumed preparation, with similar chemical and physical properties, is sold under the name of 'Cimolite.' Kaolin is unacted on by most substances, and is, therefore, suitable for diluting nitrate of silver and potassium permanganate before forming into pills or powders." As a pill excipient, the same author recommends it to be mixed with twice its weight of hardened vaseline.

Amongst more or less closely allied substances may be mentioned Fullers' earth (which is also a native aluminium silicate, with a little iron), talc and French chalk—which are chiefly silicates of magnesium, and which are also used as absorbents. Talc is also used as a filtering medium, and is said to be superior to either kaolin or French chalk for that purpose. Pipe clay, found at Poole (Dorset) and elsewhere, is another nearly related body. It contains more silica and less lime, iron and magnesia than China clay, and is largely used, without addition, for making tobacco pipes.

Pharmaceutical Journal.

A RUSSIAN SURGEON ON CLEANSING OF THE HANDS.

Dr. Cirikow formulates his ideas regarding disinfection of the hands to the following effect in a recent number of the *Vratch*. 1. Cleansing of the hands by mechanical means. Cutting the nails short, cleaning the subungual spaces in the usual way, rubbing with a hard brush, green soap, and warm water during ten minutes; all this does not give a satisfactory result. From subungual matter and from the product obtained by scraping the palm and the interdigital regions it is still possible to cultivate colonies of bacteria. 2. Placing the hands in a 2½ per cent. solution of formol for a period of three minutes will not suffice for disinfection, even though the measures just enumerated have been previously adopted. 3. Neither a solution of permanganate of potash nor a 1 per cent. or 2 per cent. solution of corrosive sublimate, whether hot or cold, can be relied upon to yield better results than are to be obtained by milder antiseptic methods. 4. The hands will beyond all doubt be disinfected if cleansed by mechanical means during three minutes, followed by brushing with a new brush in 95 per cent. alcohol during three more. When thus treated they will even remain aseptic after steeping in hot water during twelve minutes, or after four or five minutes of perspiration. Alcohol should never be used under 80 per cent., and even at that degree the results are only semi-satisfactory. 5. Wood spirit at 92 per cent. is very cheap and gives excellent results. 6. The thread gloves used by Mikuicz have little value. The experimenter's hands were first plunged into a liquid containing a little pyocyanic broth. He then put on the gloves and after from three to five minutes numerous bacteria were found in the fluid with which they had become impregnated. 7. Dr. Cirikow is at present engaged in an examination of the gloves which have been proposed by Friedrich.

The Dentist.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

INSUFFICIENT ANÆSTHESIA.

In the month of March of this year occurred in Chicago a death under chloroform administration for tooth extraction by a licensed physician in the office of a graduate in dentistry. The patient was an adult male, of an age not ascertained.

The facts, as testified to before the inquest, were that several attempts had been made to extract the tooth, a lower third molar, both by the dentist who finally operated and, previously, by others; these attempts necessarily inflicting great and exhaustive suffering.

An anæsthetic was then demanded, and the services of a physician secured for its administration. The physician states that he "examined the patient thoroughly and found no deviations from the natural order of health," and that he administered between two-and-a-half and three drachms of chloroform "through the single fold of a handkerchief * * * held in such a way as to allow plenty of air between the face and handkerchief." Further testimony is as follows:

"He took it, the chloroform, very nicely. I did not put him into the third stage; there was no vomiting. In the meantime the dentist removed the root. I had my hand on his pulse, which was all right; the respiration appeared normal. The heart and respiration stopped at the same time."

Resuscitative measures were at once resorted to, and additional medical assistance summoned; traction was made upon the tongue, artificial respiration performed, and heart stimulants (nature not specified) were hypodermically administered; these measures being continued between twenty-five and thirty-five minutes when further efforts were abandoned.

Assuming that, as testified to by the dental operator, the patient was really placed in the "proper position," that is, recumbent and not upright in the chair, the chief criticisms to be made upon the conduct of the case are, first, the selection of an agent so notoriously dangerous as is chloroform, especially for operations involving the region supplied by the fifth pair of nerves, and, secondly, the insufficiency of the amount administered in view of its incomplete anæsthetic effects; the physician testifying that he gave "enough to extract the root, but that the patient was not sound asleep," and the dentist stating that "the man was not deeply under its influence, because we had to use some force to keep him in the chair."

Here, then, was a clear violation of a thoroughly well-established and elementary law in the administration of anæsthetics, that in all surgical operations anæsthesia is always far more dangerous when incomplete than when carried to the third or full anæsthetic stage.

This law is so fully sustained, and its underlying principle so clearly explained by Bartholow (*Materia Medica and Therapeutics*) that his statement is here reproduced:

"Incomplete anæsthesia is a condition of danger. Numerous accidents have occurred from the use of anæsthetics for trivial operations—notably for extraction of teeth—in which but a partial degree of insensibility is induced. In such cases the heart, enfeebled by chloroform narcosis, is suddenly paralyzed by the reflex action proceeding from the peripheral injury. The district of tissue supplied by the fifth nerve is especially dangerous, owing to the intimate connection of the nucleus of the fifth with the nucleus of the pneumogastric. By far the largest number of fatal cases have resulted from a neglect of this rule; it is never safe to proceed in a surgical operation with anæsthetics unless complete insensibility has been produced."

In view of all the circumstances the verdict of the coroner's jury, that the chloroform was "improperly administered," was justified, and the censure of both doctor and dentist for "carelessness," in the main, well deserved; for while the dentist was not responsible for all the mistakes of the physician, he was responsible for selecting him, and for allowing him to use in such

an ineffective manner, upon a patient enfeebled by suffering, an agent so dangerous as chloroform.

EXAMINING BOARDS AND OLD PRACTITIONERS.

A communication from a San Francisco correspondent, which will be found upon another page, calls attention to cases of hardship resulting from existing laws regulating the practice of dentistry which cannot fail to appeal to the sympathies of all generous minds. It is unhappily one of the ironies of that "long malady" called life that sympathy with its misfortunes is so cheap and, at the same time, so often ineffective.

That individual hardship must attend the execution of all general laws, however beneficent in design, is, in itself, an accepted law. Indeed it is one of the fundamental conditions of the social compact that all within its pale shall surrender something of liberty, and often of personal well being, in exchange for the higher liberty and greater good which results from the safeguards of organized society.

Kindred sacrifices are demanded on behalf of the professional compact. In every State the enactments regulating the practice of dentistry or medicine have jealously guarded the rights of those already engaged in practice. No matter how meagre their educational or technical qualifications, the fact that in a given community they held a recognized place as practitioners by right of compliance with existing laws has in all cases secured them in the undisturbed possession of all their rights and privileges, and has thrown around them all the safeguards which dental and medical laws afford against the intrusion upon their field of labor of unauthorized and incompetent competitors. Hence they have received all the benefits of such laws without being compelled to pay the price in educational preparation demanded of those who seek to enter upon practice after restrictive regulations have become operative.

Thus, under ordinary conditions, each man's place in each State is secured to him, until he leaves it. For that contingency no general provision has as yet been made, and can hardly be hoped for until there is a greater uniformity in the requirements of the dental laws of the several States. At present in most States a diploma is necessary; in some States a diploma is sufficient; in a large number of States an examination, as well as a diploma, is required. This diversity of requirement is still further complicated by wide differences as to the extent and character of the preparatory training demanded by the examining boards of the several States.

The specific result of all this want of harmony in regard to matters which would really seem easy of adjustment, if the effort were sincerely made in the right spirit, is that a practitioner, no matter how eminent or deserving, desiring to engage in practice in another State, is, in the greater number of them, compelled to submit to the same examination which would be demanded of the fledgling graduate who has just shed his collegiate pinfeathers. The regulation has been fully enforced even where eminent teachers have been called from one State to fill professorial chairs in the educational institutions of another Commonwealth. "The law allows it and the court awards it." The "Letters galore from patients" which our correspondent has found of no avail as a substitute for an examination, they would, doubtless, have found equally ineffective had they thought of having recourse to that ingenuous expedient.

The cause of the old practitioners is hardly bettered by the unkind insinuation of our correspondent, that examining boards cannot answer their own questions. Even the admission of the much more probable assumption that they cannot answer each other's questions would hardly be much to the purpose; for the charge is quite as likely to be true, indeed is admittedly true, of college faculties, and yet their suppression for such cause has not yet been seriously proposed or entertained. Apropos of which professional shortcoming may be recalled the frank ad-

mission of the elder Meigs, of blessed memory, to an amused class, of which the writer was a member: "If I were compelled to pass an examination before our professor of chemistry, he would place after my name a zero mark, indicative of my ignorance, and after the zero an exclamation point, expressive of his unbounded amazement at its profundity."

Certainly, passing examinations is not an agreeable ordeal; everybody shirks it who can, but the brother dentist of whom our correspondent writes must view it with more than ordinary apprehension if, rather than undergo its terrors he prefers the plague, pestilence, famine and probabilities of sudden death which attend his continued residence in India. If asked, our advice to him, and to others similarly circumstanced, would be to "face the music." Knowledge, once really acquired, is rarely so utterly beyond recall as he appears to assume, and the advances in dental science which he apparently regards as such insurmountable barriers to his success, may assume much less formidable proportions when they cease to be viewed through the magnifying mists of apprehension, and are approached with courage and determination.

WAR ON THE DIPLOMA TRAFFIC.

Two significant victories against the iniquitous traffic in diplomas have recently been won. The first is the decision of Judge Gates, of Missouri, reproduced in this number of the BRIEF, against the right to practice under a diploma granted by the Kansas City College of Dental Surgery, otherwise known as the Atkinson College, and which must be carefully distinguished from that excellent and reputable institution, the Kansas City Dental College.

The other victory is the passage by the Legislature of Illinois of "An Act to amend 'An Act concerning corporations,'" which provides that when a corporation authorized to confer

degrees, diplomas or other certificates of qualification in the science of medicine, pharmacy or dentistry conducts a fraudulent business and violates the terms of its charter, the Attorney-General may file a bill in chancery against such corporations, and that it shall be the duty of the court in which such bill is filed to hear and determine the same as in other cases in chancery.

There is but little doubt that this act will be rigorously enforced, and that it will result in the speedy overthrow of institutions which have too long disgraced the State. Now for Wisconsin.

REVIEWS.

ANATOMY AND HISTOLOGY OF THE MOUTH AND TEETH. By I. Norman Broomell, D.D.S., Professor of Dental Anatomy, Dental Histology, and Prosthetic Technics, Pennsylvania College of Dental Surgery, Philadelphia. With two hundred and eighty-four illustrations. P. Blakiston's Son & Co., Philadelphia. 1898. Price, cloth, \$4.50.

The best feature of the book is that it is largely new, and it is this originality that places it in advance of other works upon the subjects of which it treats. The author shows good judgment in extending the field of his investigations to the mouth in general, and the initial chapter is given up to a general description of this cavity, and the parts which enter into its formation. For the sake of completeness the second and third chapters are devoted to the anatomy of the oral region, briefly told.

It would be difficult to give a better description of the teeth in general, their classification, occlusion, blood- and nerve-supply, etc., than that included in chapters IV, V, and VI; and those portions of the work devoted to the gums, mucous membrane, glands, ducts, etc., of the mouth are equally satisfactory.

Pages 131 to 232 give a minute description of the teeth, including their calcification, eruption, average measurements, surfaces, ridges, fossæ, grooves, etc. On the preparation of this part of the work the author has bestowed especial care, and the fidelity and accuracy of his results leave but little to be desired. One of the striking features of the chapters under consideration is the chart and tables which serve as an introduction to the descrip-

tion of each tooth. In these the student is enabled to find at a glance that which, without their aid, many pages of reading would be required to secure.

The pulp cavities of the teeth next receive consideration, and the internal anatomy of each tooth at various periods of its existence is fully described and illustrated. The proportionate diameter and length of the pulp canals in young teeth is a subject which heretofore has received comparatively little attention, but the author has realized the importance of these details, and has succeeded in making this section one of the features of the work.

Chapter XII is devoted to the development of the teeth, and the author's original work in this field of research is unique in its excellence. Only those who have had experience in working out such delicate dissections can appreciate the time and care required to accomplish the results here shown.

Part II embraces histology, both general and special. All the tissues of the mouth and the teeth are treated in a clear and interesting style. We would suggest for succeeding editions a chapter devoted to tooth anomalies, and also one upon dental or oral embryology. With these additions and the possible omission of certain portions of chapters one and two, which more properly come under the head of general anatomy, the value of the book would be greatly enhanced. The illustrations are excellent from an artistic standpoint, and even better when practically considered, while the mechanical execution of the volume is in keeping with the well-established reputation of the publishers.

CORRESPONDENCE.

A PLEA FOR DENTISTS OF TEN YEARS' PRACTICAL EXPERIENCE.

EDITOR BRIEF:—A letter just received from India from the son of one of our best known dentists has caused me to write this letter. He is suffering from the tropical fevers of the country, is subject to the contagion of small-pox and cholera in their most terrible forms, and on account of our unjust dental laws cannot return to the land of his birth, and is doomed to place his life in jeopardy and remain in India. I will quote a portion of his letter.

"It is useless for me to return to America, because I would have to pass the State Board. That I cannot do, for since I left college, eight years ago, many things which I had to study then I have forgotten now. It seems that years of experience go for naught, and that only students just fresh out of college can pass the examinations. This is a most cruel law and I think it should be done away with, and that in the case of a man or woman who has had ten years of practical experience he or she should be allowed to practice in any State."

I personally would like to know if all the men on the dental boards are graduates and could pass their own examinations? I would wager a great deal that they could not. Change the laws from a theoretical to a practical basis, and there will be more good work done. Pass a man or woman on an operation in the mouth; let the work speak for itself, and on that work allow a dentist to practice elsewhere then in his or her own State. Break down this unjust monopoly.

I am speaking one word for others and two for myself. Circumstances have compelled me to change the location where I have made a name in dentistry, and settle elsewhere. I have applied to different States, stating that I have been in an office from childhood (in actual practice fourteen years), and before a law went into effect; also that I hold a certificate from the State Board, and, in addition, a post-graduate diploma from Chicago; and the reply always comes back: "You must pass an examination."

I have letters galore from patients with fillings of over ten years' standing, and as good as the day inserted, and yet work does not speak where an examination in theory will.

How many of our dentists of twenty or thirty years' standing can pass an examination, or go into a college and get diplomas? And yet they are certainly superior in every respect to the new graduate in practical experience and in operative skill.

After years of study I find myself compelled to give up my profession, because when I wish to leave the State and begin life anew so as to earn an honest living an examination is demanded. Why not examine me practically, take my certificates and letters, and, if I am capable and worthy in my work, allow me to practice elsewhere. Let us have justice in our laws, and give justice where justice is due.

Dr. Luella Cool, San Francisco, Cal.

ANNOUNCEMENTS.

COLORADO STATE DENTAL ASSOCIATION.

The Colorado State Dental Association will convene in Denver June 13th, and remain in session June 13th, 14th and 15th. It is hoped that a number from out of the city will avail themselves of the opportunity and attend, as there will be much of interest to all dentists.

Dr. Sarah May Townsend, Cor. Sec.

THE CHICAGO DENTAL SOCIETY.

List of officers of the Chicago Dental Society for 1899-1900, elected at the annual meeting, held in the Stewart Building, Tuesday evening, April 4th, 1899: President, Garrett Newkirk; First Vice-President, G. W. Cook; Second Vice-President, B. D. Wikoff; Secretary, Elgin Ma Whinney; Corresponding Secretary, C. S. Bigelow; Treasurer, A. B. Clark; Librarian, C. J. Merriman; Member Board of Directors, Edmund Noyes; Board of Censors, A. W. Harlan, Chairman, W. V.-B. Ames, C. N. Johnson.

TRANSCRIPT OF JUDGE GATES' DECISION SUSTAINING THE MISSOURI STATE BOARD OF DENTAL EXAMINERS IN REFUSING TO REGISTER DIPLOMAS OF THE KANSAS CITY COLLEGE OF DENTAL SURGERY (THE ATKINSON COLLEGE).

State *ex rel.* Chas. C. Clark, Relator,

vs.

No. 32,265.

Wm. M. Bartlett *et al.*, Defendants.

This proceeding is an application for a mandamus on behalf of the relator against the defendants, members of the State Board of Dental Examiners, to compel said board to issue to the relator a certificate authorizing him to practice dentistry in the State of Missouri.

The questions involved require the consideration of the acts of 1883 and 1897, in reference to the practice of dentistry

within the State. Prior to 1883, there were no statutes relating to the subject. Anyone who desired could practice dentistry without question of the State authorities. The act of 1883 attempted to regulate the matter somewhat. It was, however, brief and meagre. It recognized the fact that it would not be right to deprive old-established dentists of their means of livelihood because they were not graduates of some dental school, and, therefore, its first section is as follows:

"Section 6889. It shall be unlawful for any person to practice dentistry or dental surgery in the State of Missouri without first having received a diploma from a *reputable* dental college, or a university duly incorporated or established under the laws of some one of the United States, or of a foreign government; Provided, that nothing in this article shall apply to any *bona-fide* practitioner of dentistry or dental surgery in this State at the time of the passage of this article; and provided, that nothing in this article shall be so construed as to prevent physicians, surgeons and others from extracting teeth."

The other sections provided that persons who thereafter should engage in the practice of dentistry should file a copy of their diplomas with the county clerk, and that every *bona-fide* practitioner in the State, desiring to continue to practice, should file with the county clerk an affidavit of the facts; to each of which classes the clerk should issue a certificate, which should be *prima-facie* evidence of the right of the holder to practice dentistry. There was no method or tribunal provided to determine what was a *reputable* dental college.

The act of 1897 is much more complete in its provisions, and established a State Board of Dental Examiners. It provided that it should be unlawful for any person to practice dentistry unless such person should first procure a certificate from said State Board. Sections 4, 5 and 6 of said act designate the persons who should be entitled to receive such certificate, and the method of procuring it. As the relator claims to come within the provisions of Section 4, it will not be necessary to consider Sections 5 and 6. Said Section 4 reads as follows:

"Section 4. It shall be the duty of every person legally engaged in the practice of dentistry in this State at the time of the passage of this act, who shall have legally qualified as such practicing dentist under the laws of the State of Missouri in force at the time of the passage of this act, and desiring to continue

such practice, to file with the State Board of Dental Examiners his certificate of registration, as received from the clerk of the county court where he shall have registered, or, if he shall have registered in the city of St. Louis, then his certificate from the city register of the city of St. Louis, within ninety days after the passage of this act, whereupon the board shall issue to such person a certificate upon the payment of the fee of \$1.00; Provided, that the board may in any case they may deem proper require the holder of a certificate of registration to prove that he or she is the lawful possessor of the same, and that *said certificate was obtained without fraud or false representation*, and the lawful holder thereof shall be entitled to all the rights and privileges herein mentioned. The certificates required to be filed with the Board under this section may be presented to the board by letter or by proxy, and the board shall issue its certificate as though the person presenting the same were present."

Relator claims that on March 1st, 1895, he received from the Kansas City College of Dental Surgery a diploma; that he thereafter filed with the county clerks of Jackson and Cass counties, in this State, a copy of said diploma, and received a certificate from each of said clerks; that he presented the certificates to the defendants herein and demanded a certificate from said State Board of Dental Examiners; that they refused to grant him such certificate; hence his application for a writ of mandamus herein to compel them to issue one to him.

Their answer in substance is, among other allegations, that they refused to grant such certificate because the Kansas City College of Dental Surgery was not a *reputable* college; that relator had not attended the same in *good faith*, for the purpose of qualifying himself to practice dentistry, and that his certificates from said county clerks were obtained *fraudulently, and by false representations*. That, subsequent to the issuing of the alternative writ herein, the relator appeared before the respondent's board to make proof that he was the lawful possessor of the said certificates, and the same were obtained without fraud or false representation on his part, and that after hearing the evidence the board found the issues against the relator. Have either the said board or this court, in this proceeding, the right under said Section 4 to inquire into the fact, as to whether or not the relator obtained his said certificates from said county clerks without fraud or false representation? Said Section 4 gives the State Board such

authority, and I am of the opinion that if the question is raised, it is not only within the jurisdiction of duty, but the duty of this court to do so. There is no evidence here that any false representations were made by relator to the clerks, or that any representations at all were made, only the fact that the copies of the diploma were filed and the certificates issued. As to fraud in obtaining them, a different question arises.

The evidence introduced at the hearing of this case established beyond all doubt that the Kansas City College of Dental Surgery (known as "The Atkinson College") was, at the time the relator received his diploma, a most disreputable one; that it was engaged in selling diplomas, and that it did not require any stated length of time of attendance at it in order to receive a diploma; that it even sent diplomas C. O. D. by express to parties in other cities, who never attended it a single hour for the purpose of receiving instruction. It is also certain that this was known at the time, to the relator, or at least sufficient similar facts to give him knowledge that it was not a reputable college.

Now, it is clear that a holder of a diploma sent C. O. D., who had never attended the college for the purpose of receiving instruction, would, in filing a diploma so obtained with the county clerk, for the purpose of receiving a certificate from the clerk, be guilty of obtaining said certificate by fraud. If the relator had attended the college in good faith, with the purpose of qualifying himself for the practice of dentistry, although he knew that the college was indulging in methods that were irregular, he might not have any fraudulent design in procuring the clerk's certificate; but the relator herein attended what he knew to be a college of very questionable character, for the reason that he could thereby sooner procure a diploma with which he could obtain a clerk's certificate, giving him the *prima-facie* right to practice, than he could if he attended a reputable dental college. With his knowledge of the character of this college, and his motives for attending it, I am of the opinion that his clerk's certificates were fraudulently obtained.

Moreover, the respondents herein, the State Board of Dental Examiners (although since the issuance of the alternative writ herein), passed upon this very question, after giving the relator a hearing before them.

If they had refused him a certificate from the mere whim or caprice or unjust prejudice against relator, this court might inter-

fere in his behalf; but I am satisfied that they treated him very fairly in the whole matter, and although their refusal to grant him a certificate was based at first upon grounds which were untenable, yet this was not on account of any prejudice against the relator, and the board has since rectified their action in this respect. No manifest injustice has been done to the relator.

In this view of the case it is clear from all the authorities that this court has no right to interfere with or control the action of the State Board.

The peremptory writ is denied.

Western Dental Journal.

RECENT PATENTS RELATING TO DENTISTRY.

623469, Dental handpiece, John G. Hailer, Philadelphia, Pa.

30560, Design, tooth powder and brush holder, Charles A. Kirkwood, Chicago, Ill.

623751, Artificial tooth crown and backing, Cephas Whitney, Kingston, Jamaica.

624425, Dental operating chair, Axel F. Borgen, Malmo, Sweden.

624015, Dental disk-holder, George B. Hankins, Norwood, N. Y.

624137, Dental engine, Claison S. Wardwell, New York, N. Y.

30693, Design, supporting piece or plunger for dental chairs, Enoch M. Fredericks, Chicago, Ill.

624605, Alloy, Wm. D. Allen, Huntsville, Ala.

624722, Tooth crown holder, Wm. O. Allen, Billings, Montana.

30744, Design, fountain spitton bowl, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.

TRADE-MARKS.

32801, Antiseptic and a remedy for certain named diseases, Dr. A. H. Keller Chemical Co., Sioux Falls, S. D.

32848, Disinfectant, Jules Brissonnet, Paris, France.

32849, Disinfectant, Jules Brissonnet, Paris, France.

32842, Medicinal antiseptic lotion for certain named diseases, Electrozone Company, New York, N. Y.

Questions and Answers *

Question 36. *What do you consider the best treatment for receding gums?*

Scale tartar, if any, from tooth, wash with hydrogen dioxid 3 per cent., and apply 10 per cent. solution of trichloracetic acid, which will effectually rid the surfaces of the teeth of sanguineous deposits. Wash with tepid water, and apply a paste of quinin sulphate to the necks of the teeth.

Dr. A. C. Eglin, Philadelphia, Pa.

Often caused by transverse brushing. The gingival margins may be firm and neat, although recession has occurred. Treatment, moderation in vertical brushing. If the gum margins are ragged and inflamed and calculus has been deposited, the teeth should be cleaned, the inflammation reduced with astringent antiseptic, such as zinc chlorid solution, and the brushing regulated.

Dr. Otto E. Inglis, Philadelphia, Pa.

Be sure that all deposits are removed from the teeth, then cauterize the edges of the receding gums with 50 per cent. solution of trichloracetic acid.

Dr. G. R. Beecher, Philadelphia, Pa.

Question 37. *Does the shade of an artificial tooth ever change after being exposed to the secretions of the mouth?*

Yes; but it is not a common occurrence.

Question 38. *Is there a society of Anæsthetists in London, England? Who is the president, and where and when do they hold their meetings?*

Dr. Dudley Buxton is president of the Society of Anæsthetists of London, England, and the society holds its meetings at room 20, Hanover Square, W., in London, on the third Friday of each month.

Question 39. *Will you give your method of filling pulp-canals with oxychlorid of zinc, and whether or not there is usually any after pain?*

When I fill pulp canals with oxychlorid of zinc I mix it to the consistency of thick cream, and pump it to the apex with a suitable broach, and then force a gutta-percha cone gently through it. I have had very little after pain.

Dr. V. Walter Gilbert, Philadelphia, Pa.

*Address all questions for this Department to its editor, Dr. Henry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.

After the pulp has been removed, thoroughly cleanse and dry canal. Mix the oxychlorid to a creamy consistency, and slowly pump it into the canals with a broach on which there is a little cotton. Put over this a capping of oxyphosphate of zinc, and then the tooth is ready for the filling.

Dr. G. R. Beecher.

Question 40. *Will chloroform decompose on being exposed to air and light, and what does it form?*

Chloroform, on exposure to sunlight or diffused daylight in the presence of air, undergoes decomposition with the formation of phosgene gas.

Question 41. *Do you consider alum as good a styptic as antipyrin, or is it too irritating?*

I prefer alum.

Dr. Beecher.

Antipyrin has palliative as well as styptic properties when applied to a wound.

Question 42. *A patient, twenty-five years of age, with first bicuspid filled with amalgam and the second bicuspid filled with cement. About once in six months one of them gives him trouble when he eats anything hot. This condition lasts from two to three weeks. A drink of cold water relieves the pain. Neither gives pain on percussion or by use of hot air syringe. What is the remedy?*

From data would suspect a pulp undergoing calcific degeneration. Isolate each tooth by means of the rubber-dam during an attack, and make test with hot water to determine which tooth is affected. If a gutta-percha cap, placed over the tooth during an attack, does not relieve it, then devitalize and remove the pulp.

Dr. Otto E. Inglis.

Using the dam, isolate one tooth at a time, and try hot water. On obtaining a response, open into affected tooth, disclosing the pulp chamber. I should expect to find the pulp-canal greatly reduced in size, the pulp, in self-defence against thermal changes, having deposited calcific matter around the wall. Should expect also to find the pulp in a putrescent condition, which would explain the pain on the application of heat. The small canal and consequent small quantity of pus present explains why the disturbance is controlled by cold. The treatment of putrescent pulp is a matter of personal preference. Sodium and potassium, a preparation which saponifies the contents of the canals, I find very satisfactory. Sodium and potassium is supplied in small

glass tubes, and is introduced into the canal by means of a platinum broach, after which the canal should be thoroughly washed with warm water.

Dr. Archibald C. Eglin.

If the teeth are alive, devitalize them; but if dead and putrescent the roots and cavity should be cleansed and properly filled.

Dr. G. R. Beecher.

Practical Points.*

A Correct Bite.—In taking a bite instruct the patient to extend the jaw as far as possible (as they always do); then have them relax the muscles and bite gently on the wax, and you will have a correct bite.

Dr. Gustavus North, Cedar Rapids, Iowa.

To Prevent Odors from Medicine Bottles.—Keep bottles containing drugs with objectionable odor on a glass slab, and over each bottle invert a small glass tumbler.

T. Ledyard Smith, Items of Interest.

Pulp Nodules; Diagnosis.—I have noticed a good deal of change in the color of a tooth. * * * You will find when the pulp chamber is filled with secondary deposits that the tooth is badly discolored, very readily perceptible to even a casual observer.

F. N. Brown, Dental Review.

Artistic Treatment of the Teeth.—Pointed cuspids and irregular lengths of laterals and centrals, when ground off to approximate symmetry, improve the appearance and increase the usefulness of the teeth, also facilitating cleaning the teeth on the part of the patient.

A. C. Hart, Items of Interest.

Canada Balsam for Fixing Inlays.—Inlays of porcelain treated with Canada balsam dissolved in benzol are much more durably fixed in position than when bedded in a film of oxyphosphate, provided an accurate fit has been obtained.

W. Booth Pearsoll, Dental Review.

Clean Teeth Never Decay.—Smooth and polished enamel surface is nearly immune to the action of bacteria, because the starchy food, and bacteria plaques cannot become adherent to a polished surface, which is readily kept clean by the tongue and cheeks.

A. C. Hart, Items of Interest.

* Compiled by Mrs. J. M. Walker, Bay St. Louis, Mississippi, Special Reporter of Dental Proceedings.

For Chapped Hands.—

R. Menthol	1
Salol	2
Olive oil.....	3
Lanolin	80

Apply twice daily.

Ritterband, Dental Review.

Perfect-fitting Backings.—Grind the facings (for front tooth) to feather edge, using fine stone. Adapt pure gold, No. 32, to back; punch holes for pins and put back on tooth. Roll up several thickness of rubber-dam and swage the tooth and backing between the heavy folds of dam, using horn mallet. Result will be a perfect-fitting backing.

American Dentist.

Implantation in the Maxillae.—As the result of experiments in implantation of foreign bodies in the maxillæ, independent of periosteum, Carl Theo. Graurm found that while periosteum was most effective in bone production, all other connective tissues, when irritated and forming plastic exudates, are capable of producing bone.

Medicine.

The Essentials to Success in Root Treatment.—1. The rubber-dam. 2. Free, direct access. 3. Thorough cleansing, mechanically and antiseptically. 4. Getting the antiseptic through the root. 5. Perfectly filling the root, immediately upon getting an aseptic condition, with an antiseptic root filling. 6. Sufficient confidence in the method used to insure thorough work and the minutest attention to details.

F. Milton Smith, International Dental Journal.

Prevention of Rust.—Small instruments, surgeon's needles, etc., if kept immersed in cold water saturated with carbonate of soda, common washing soda, are effectually protected from rust. Needles so treated were as bright at the end of a year as the day they were put in the bottle.

Dr. Dawbarn, International Dental Journal.

Cement and Amalgam.—If a cavity with very frail walls is nearly filled with cement, and a veneer of amalgam well burnished in, the cement will cling to the frail walls and add materially to their strength, while the amalgam will form a strong union with the cement and seldom break away. The tubuli of the dentin are better filled and the teeth will be less affected by thermal changes.

G. L. Ambrose, Western Den. Jour.

Formaldehyde in the Treatment of Alveolar Abscess.—From one to three drops formaldehyde, placed with minim syringe, will cause granulation in alveolar fistula. Applied at time of root dressing it will hasten cure, generally making short work of abscesses with fistulous opening.

J. H. Hanning, Dental Headlight.

The Tonsils and Carious Teeth.—Kantorowicz has called attention to the frequent coincidence of carious teeth with hypertrophied tonsils. 275 cases of bilateral hypertrophy were accompanied with 296 teeth affected with caries, and in 24 unilateral cases there were 101 carious teeth. He suggests that better care of the teeth might reduce the number of cases of hypertrophied tonsils.

Revue de Laryngologie.

Moisture-tight Gutta-percha Fillings.—Dry the cavity well, insert a pellet of cotton saturated with absolute alcohol, remove and with warm-air syringe evaporate the alcohol and varnish with a solution of common resin in chloroform. Warm the gutta-percha and pack with a cold instrument. Heat a thin-bladed instrument and pare off surplus. Polish with oil of cajuput.

Dental Century.

Metallic Root-canal Fillings.—It has been proved by experiments upon microbes that metallic silver in contact with microbes is attacked by certain of the toxines, probably of acid reaction, produced by them in their life-processes and death-decomposition, and that it is dissolved, making a compound that is very poisonous to the microbes. It is thus possible that metallic silver might be preferable to gold as wire used in root-canal filling.

Dr. Dawbarn, International Dental Journal.

Treatment of Alveolar Abscess.—First anæsthetize the part or patient; next antisepticize the parts; then raise a periosteal flap from the external alveolar plate, the bone being exposed. Then, with a clean bur of sufficient size ($\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter) in the surgical engine, drill directly into the alveolar abscess and completely remove its contents, all of the accumulated debris and the necrotic extremity of the root should that be the condition. Sterilize the pulp canals and fill. Pack the abscess cavity with iodoform gauze or other dressing, leaving the opening through the external alveolar plate lightly covered by the pendant fold formed by the periosteal flap.

H. C. Bocanning, M.D., International Dental Journal.

Mouth Wash for Fetid Breath.—

R. Borate of sodium.....	15 grs.
Alcohol	½ drachm.
Water	1 pint.
Thymol	7 grs.

Ohio Dental Journal.

Retention of Loose Teeth.—Where but very little attachment is left the condition may in many cases be improved by the removal of the pulp, thus concentrating the circulation and increasing the nutritional supply of the capillaries feeding the pericemental tissues.

M. L. Rhein, Dental Review.

An Antiseptic Mouth Wash.—As the result of numerous tests and chemical analyses it is found that sanitol is antiseptic in the proportion of 1 to 38 parts. It is neutral in reaction, and contains no mineral acids or other ingredients that might prove baneful to the soft tissues. Its therapeutic action is that of a mild stimulant.

A. H. Peck, Dental Digest.

Decalcified Dentine.—Remove all that can safely be done short of actual exposure of the pulp. If large masses of decomposing tissue are found remove even if it causes exposure. The pulp will be safer under a capping of foreign material than when subjected to the influence of this infected and poisonous mass.

A. N. Johnson, Dental Cosmos.

Obliterated Canals.—It has been held that no danger could arise from an undisturbed "obliterated" canal, but the contrary has been my experience. I have found, within one-half of a line of the apical foramen, an open canal containing pus, showing the presence of pathological germs. * * * Is it not possible that microorganisms can move along the line of the obliterated canal (which is unorganized dentine) down to the point where an open canal presents itself and infect it?

J. H. Wooley, Dental Review.

A Hint.—In taking "plaster impressions," where there is any degree of undercut, take a small quantity of abestos fiber and shred it in the water before sifting in the plaster. If the edges fracture, the pieces will hang in their places by means of the fibers, and all you have to do is to push them back in their places. This will avoid having to fish for the pieces here and there, and, worse than that, getting them back in their right places, which, at best, is nothing short of a Chinese puzzle.

T. A. Campbell, Dental Department, Harvard University.

Arrest of Hemorrhage After Extraction.—Wash the alveolus forcibly by a jet from the water syringe to remove all the blood clot. Plug immediately with iodoform gauze, bringing it into direct contact with the bleeding wound. Press the plug in as tight as possible, and press the alveolus laterally with the fingers.

(Translation) *H. Printz, Ohio Den. Jour.*

Cinnamon Water as an Antiseptic Dressing.—In all minor surgical cases of recent wounds and burns cinnamon water (tested in hundreds of cases)—8 drops pure oil to a quart of water—can be relied upon to take the place fully of that malodorous drug, iodoform. For burns, keep the dressing constantly moistened with the cinnamon water.

F. Loper, M.D., Dental Review.

Retention of Porcelain Inlays.—The retention of the inlay in the cavity is entirely dependent on the cement. Shape the cavity at first so that there is no undercut. When ready to insert the inlay, with a diamond disk $\frac{3}{8}$ inch in diameter, make a number of undercuts in the inlay at points corresponding to undercuts to be made in the cavity.

Dr. Deems, International Dental Journal.

Removal of Pulp Nodules.—Anæsthetize the very sensitive pulp tissue with cocain and open more thoroughly. If the deposit adheres to the dentinal wall and obstructs the entrance to the canals, saturate a pledget of cotton with 50 per cent. sulphuric acid and seal in the cavity for twenty-four hours. This will form a line of demarcation about the nodule, and separate it from the walls of the tooth. If the pulp is still sensitive anæsthetize again with cocain. *D. A. Hare, Dental Review.*

The Coated Tongue.—It is astonishing how long this breeding-ground for all manner of germs of fermentation and disease has remained unnoticed in this age of antiseptic philosophy. The cleaning of the tongue should be recommended and practiced as a hygienic procedure. No doubt there is a constant stream of germs of all sorts carried into the stomach from this foul coating of the tongue, infecting the alimentary canal as well as the blood. * * * The most common cause of "bad breath" is the decomposition of this coating on the tongue. By thoroughly scraping off all loose matter and disinfecting the surface the odor will be removed, provided the teeth have also been cleaned.

W. H. Weaver, Dental Digest.

Sealing Pyorrhea Pockets.—

R. Purified gun lac.....	135
Purified benzoin.....	5
Carbol. acid crystals.....	50
Oil cinnamon.....	3
Saccharin	3
Alcohol q. s. to make $\frac{1}{2}$ liter.	

After the removal of all deposits and the application of a stimulating escharotic, covering with the above soothing application will keep the pockets sealed for many hours, and will be found beneficial from its therapeutic properties.

M. L. Rhein, Dental Review.

Root Formation as Indicated by the Crown Contour.—From the careful study of a large number of extracted teeth the following general rules have been deduced: Crown with rounded outline and small neck—roots small and curved outward from the neck and inward toward the apex—describing the segment of a circle; the larger the neck, the larger the roots, with the same general outline. Crown with square corners and small neck: roots spreading outward from neck to apex; the larger the neck the more pronounced this form of roots. A rounded contour of crown indicates a turning in of the roots. Square contour of crown, spreading roots. Where there is mechanical abrasion the tooth will, as a rule, be found to be firmly braced with strong spreading roots, holding the tooth solidly immovable and resisting the impact of mastication.

Geo. B. Clement, in Mississippi Den. Asso., 1899.

Crown- and Bridge-work Decrowning and Immediate Pulp Extirpation.—Having ready a few points of orange wood, hickory or wedgewood well saturated with a strong disinfectant, with a disk cut a groove across the labial and palatal surfaces of the tooth; place one blade of excising forceps in each groove and remove crown. Without delay (for it must be done before the nerve recovers from the shock) insert one of the prepared points at the mouth of the canal, and with a light mallet give a quick, sharp blow. Withdraw the plug, to which the pulp remnants will usually adhere. Prepare canal for post at once. Advantages: The operation is comparatively painless and the risk of toxic effects and periostitis from arsenical application is avoided or reduced to a minimum.

R. E. Sparks, Dominion Dental Journal.

Broaches of Uniform Temper.—Milliner's needles were placed, point down, in a thin metal screw-top bottle, which had a few holes bored in the top to allow for expansion of air. The bottle was grasped at the top with a small pair of soldering tongs, bent to grasp it firmly, and placed bottom down over a Bunsen flame. When the right color came the bottle was withdrawn from the flame and allowed to cool, which it will do but slowly, as glass is a poor conductor and the holes admitting but a small amount of air. *H. C. Muriane, International Dental Journal.*

Cavity Lining Under Gold Filling.—Having prepared the cavity, dry with hot air, relieving the dentine of sensitiveness; coat with varnish, which prevents the return of moisture and also of sensitiveness. Remove excess of varnish with small pieces of rubber-dam, which leaves no lint behind. While the varnish is tacky start the filling with a piece of Watt's crystal gold No. 1, cut in slices of about 17 plate gauge, and in pieces of size to cover cavity. Anneal upon mica. Upon this foundation build up the filling, using foil in tape form, folded in flat layers.

S. B. Palmer, International Dental Journal.

Porcelain Fillings.—In proximate surfaces of the upper incisors cut the palatal walls of the cavity away, preserving the front of the tooth to the greatest extent possible, doing all the work from the palatal aspect; there is then little difficulty in removing the gold impression. Having adapted the gold and trimmed the margins, replace it in the cavity, and while in position fill nearly full of a high-fusing body (as that supplied by Ash & Sons). This greatly simplifies the removal of the gold form and prevents from changing shape. After the first baking the same body is added to nearly full contour; for the final baking a low-fusing body is added to complete contour and give the glazed enamel finish, the last requiring only three minutes for melting.

J. Leon Williams, Dental Cosmos.

CORRECTION.—In a "Practical Points" item on pulp devitalization, in the April BRIEF, credit should have been given to Dr. Frank C. Pague, of San Francisco, Cal., and not to Frank C. Payne, as erroneously printed.



Miscellany.

Analysis of the Enamel of the Human Teeth.—A. H. Elliott, Ph.D., F.C.S., College of Physicians and Surgeons, New York, has made the following analysis:

Phosphate of calcium.....	87.97
Phosphate of magnesium.....	1.10
Carbonate of calcium.....	6.75
Organic matter.....	1.75
Soda, salts, etc.....	2.43

100.00

The above is an average analysis from the enamel of twenty different teeth.

In comparison with the analysis of Von Bibra and Hoppe Seyler, Professor Elliott finds a little more of the phosphate and a little less of the carbonate of lime.—*Dr. G. W. Weld.*

A Pioneer in Waterworks.—Hezekiah, King of Judah, who reigned in the years 717 to 688 B. C., was a pioneer in constructing a system of waterworks, bringing water into the city of Jerusalem. In the Holy Book we read: "He made a pool and the conduit, and brought the water into the city, stopping the upper part of Gihon, and brought it straight down to the west side of the city of David. And Hezekiah prospered in all his works." From the "Pools of Solomon," near Bethlehem, water was conveyed to Jerusalem, a distance of six or seven miles, through a conduit of earthen pipe, about ten inches in diameter. The pipe was encased within two stones, hewn out to fit it, then covered over with rough stones cemented together.—*Sanitary Record.*

Bill Nye and the Nurses.—I have just been sent to the hospital for twenty days. My physician did it. He did it with an analysis. Anybody who amounts to anything nowadays gets analyzed. Sometimes you find casts, sometimes you find maple sugar, and sometimes you find acids oxides, paint, oil, varnish, white lead, borax, albumin, lime, hair, and cement. In these cases the patient should be placed under a strict diet, or he will in the course of his life become a corpse. I go in details about this because a false impression got out a few weeks ago to the effect that I came here for another purpose. A reporter came to see me, and I sent word to him that I was out on the operating table in such a position that I could see no one, while an elderly surgeon was engaged in removing a porous plaster received during the war. I was not serious in saying this, but unfortunately I have the reputation for absolute veracity and seriousness, so that the statement got into the papers as *bona-fide*, and caused American securities to go down two points in one day.

Artificially Purified Air.—Referring to Laborde's announcement that he had discovered a chemic substance that would absorb carbon dioxide and generate oxygen at the same time, d'Arsonval calls attention to his announcement several years ago that he had realized these conditions by the mutual decomposition of oxygenated water and chromic acid. Tests with these substances demonstrated that animals could live and thrive in a hermetically closed chamber with the air artificially purified by the mutual action of these substances.—*Presse Méd.*

Filtered Milk.—Milk is filtered through sand in several European cities. By this process all dirt is removed, the number of bacteria is reduced one-third, and the quantity of mucus and slimy matter is greatly lessened, while the loss of fat in new milk is only slight. The filter consists of large cylindrical vessels divided by horizontal perforated diaphragms into five superposed compartments, of which the middle three are filled with fine clean sand sifted into three sizes, the coarsest being placed in the lowest and the finest in the topmost of the three compartments. The milk enters the lowest compartment through a pipe under gravitation pressure, and after having traversed the layers of sand from below upward, is carried by an overflow to a cooler fed with ice water, whence it passes into a cistern, from which it is drawn direct into the locked cans for distribution.—*The Dietetic and Hygienic Gazette.*

Fifty Per Cent. of the Creosote Sold Found to be Carbolie Acid.—The Committee on Adulteration of the New York State Pharmaceutical Association, after examining many samples of creosote purchased throughout the State, "found to their utter astonishment that fully 50 per cent. of the article sold as creosote was in fact carbolic acid of doubtful purity diluted with more or less water, alcohol and glycerine. There is no excuse for the existence of such conditions, as this question had been fully ventilated in the trade papers as well as in the scientific pharmaceutical journals; and this is particularly inexcusable, since the tests given in the U. S. P. are easily executed by any apprentice even, and will promptly reveal the nature of the article purchased."

Some years ago Prof. Willis G. Tucker wrote in his annual report to the State Board of Health of New York that crude carbolie acid, sometimes designated in the trade "coal tar creosote," and consisting chiefly of phenol and cresol, is very commonly sold for real creosote, because much cheaper, but the substitution should not be made, as the articles possess different properties, and when creosote is called for, the true article should be supplied. From the table which was then given it was seen that of the two hundred and twenty-two samples furnished only one hundred and nineteen were real creosote of good quality; one was of fair quality; and the remainder consisted chiefly of carbolie acid.—*Bulletin of Pharmacy.*

Treatment of Carbolic Acid Poisoning.—Harnsberger (*Charlotte Med. Jour.*, February, 1899) saw a boy, aged 16 years, within thirty minutes of the time that he had swallowed 1.5 ounces of carbolic acid. He was in a limp and comatose state, the pulse being imperceptible. A pint of cream was at once poured into the stomach, which was kneaded in order to mix thoroughly the cream and the carbolic acid. Dry heat and friction were applied to the legs and arms. In two or three hours consciousness returned. The administration of cream and unskimmed milk was continued at short intervals for several hours. The patient entirely recovered in two days. Harnsberger has found that an adult can take 4 drams of pure carbolic acid mixed with cream and glycerine, or with alcohol, without any toxic symptoms developing.—*Med. News*.

In South Formosa the camphor trade during 1897 and the earlier part of last year almost entirely stopped, so far as concerned foreign merchants, owing, among other causes, to the disturbed state of the country, and the difficulty and danger of sending money into the camphor districts. The roads were infested with armed robbers, and robberies were of such frequent occurrence that no merchant would venture to send money into the interior. In the raids and skirmishes between the military police and the robbers in the camphor-producing districts numbers of stills were destroyed, it being estimated that not one-third of the stills in existence a few years ago, in which foreigners in South Formosa were interested, are now available for camphor production.—*Pharmaceutical Journal*.

How Santiago was Cleaned.—In a report to the Secretary of the Treasury, Mr. Robert P. Porter, speaking of improvements made at Santiago, says that the disagreeable smells of the typical Cuban city are less pronounced in Santiago, while whitewash, fresh paint and disinfectants have deodorized the surrounding atmosphere and made the old town quite habitable. The streets are no longer used as sewers, and any person violating the law is compelled to work on the street for thirty days. Sanitary Commissioner Barbour has under him one hundred and twenty-six men, dressed in spotless white, and employs thirty-two mule teams and carts. The streets are now kept absolutely clean and the garbage is regularly burned. The work of sanitation is not confined to the streets, but extends to the dwelling houses and other buildings. In many cases the people making sewers of the thoroughfares were publicly horsewhipped in the streets. Some of the most respectable citizens were hauled before the commanding general, and sentenced to aid in cleaning the streets they were in the habit of defiling. The campaign has resulted in a complete surrender to the sanitary authorities, and the inhabitants of Santiago are now learning the necessity of living like human beings and of observing the decencies of life, at least in public.—*Medical Record*.

Tooth Extraction for "Bleeders."—Davies observed a family in which the father, two sons, and two daughters were bleeders. One daughter and two sons were healthy. The treatment he resorted to was placing the patients in bed, keeping them absolutely quiet, scarcely permitting them to talk. All food was withheld for forty-eight hours; sips of ice or cold water were given occasionally. He never used medicine. After the bleeding had ceased, the patients were kept on plain, non-stimulating diet. He has found that cases living under such conditions will be free from hemorrhages through prolonged periods. He has been able to have teeth extracted in these cases by freezing the cavity from which the tooth was taken by chlorethyl freezing mixture, contained in bulbs with beaks at an angle to suit the mouth.—*Phila. Med. Jour.*

The Secret of Longevity.—A writer in the *Lancet*, January 21st, 1899, says that no one has come nearer than George Humphrey to an accurate conception of the secret of longevity. The total number of aged persons whose life-history was examined by him was close on 1,000, 74 of whom were centenarians. The conclusions arrived at by him were briefly these: (1) That the primary factor in a long life consists in an inherited durability; the vital machinery is wound up to go for a given period, and but for accidents, or in spite of them, it will go till the time appointed. (2) That an important part of the primary inheritance is good digestive and nutritive power. (3) That temperance is necessary in the use of the nutritive functions, both in eating and in drinking, and in regard to all kinds of food and drink. (4) That an energetic temperament and active habits conduce to longevity.

Meagre Diet of Porto Rican Peasantry.—Dr. L. Amadeo, a physician resident in Porto Rico has made a careful report on the mental and physical condition of his fellow-islanders. He was well qualified for undertaking the investigation, of which the summarized results were published in the New York journals, for he had both studied and practiced medicine in this country, and, being a Porto Rican by blood and birth, was not likely to see in his people defects that do not exist. What he did see was the effect of insufficient nutrition extending through the whole working class, *i. e.*, through the whole class, which, thanks to Spanish tariffs, was forced to live on roots and fruits. He implores his new rulers to avoid the murderous policy of their predecessors, and to put within the reach of the toiling thousands in Porto Rico the very food which so horrifies and disgusts the vegetarian monomaniacs. Meat, he says, is the remedy for wasted muscles and inactive brains. This is science; it is also common sense, but it will raise a howl of anger from the unfortunate people to whom the prohibition of good things seems to be the alternative to its abuse.—*New York Times.*

Wet Dressings of Alcohol.—Zangger (*Lancet*, January 28th, 1899) has produced the greatest relief in inflammations of various kinds, felons, lymphangitis, furunculosis, etc., by covering the inflamed areas with gauze and cotton saturated with strong alcohol. Over this is placed a sheet of gutta-percha tissue to prevent the alcohol from evaporating, and the whole is held in place by a bandage. In numerous cases such a dressing was used alternately with a wet dressing of 1-2,000 bichloride of mercury in water, or after the failure of such a dressing to control the pain and swelling, and the rapid improvement under the alcohol applications left no doubt in his mind that it was far superior to a watery dressing. The dressings are not serviceable in chronic glandular swellings.

Auto-intoxication.—Martin states that the term is used to designate three different conditions: poisoning from the gastrointestinal tract, the poisoning of chronic disease, and the poisoning from the glands of the body, thyroid, etc. With reference to the first form of auto-intoxication, it may be said that most of the intestinal bacteria are non-pathogenic as long as they remain in the intestine. If the products of putrefaction are absorbed the body is poisoned, but this process frequently passes from one of intoxication to one of infection of the intestinal wall or of the peritoneum by the germs themselves. Again in the normal processes of digestion bodies are formed which possess poisonous properties, and if they are absorbed without further change they may give symptoms of poisoning. In uremia it has been shown that the toxic properties of the urine are diminished, and it may fairly be inferred, therefore, that poisons are retained in the blood which would normally be eliminated.—*Med. News.*

Applications of Eucaïne in the Esophagus and in the Rectum.—Bayer (*Centralbl. f. Inner Med.*, January 7th, 1899) anesthetizes the pharynx and upper portion of the esophagus with a 3 per cent. solution of eucaïne before passing the esophageal tube. In two minutes the parts are absolutely insensible. In cases of carcinoma, in which the act of swallowing even of fluids is well nigh impossible, an application of eucaïne will enable the patient to swallow even solid food without difficulty. The eucaïne in such a case is applied by means of a syringe, and the patient easily learns to make the application. There is no danger from poisoning. Applied in the same strength on cotton eucaïne is the best agent for preparing the rectum for dilatation or the introduction of instruments, removing absolutely all pain. For obstinate tenesmus in connection with carcinoma the injection of 10 to 30 drops of the same solution has proved most satisfactory. There follows a feeling of comfort in the lowest section of the bowel, which lasts sometimes for hours.—*Med. News.*

THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, JULY, 1899.

No. 7

ORIGINAL COMMUNICATIONS.

SOME TOOTH POWDER AND TOOTH PASTE FORMULAS, WITH DIRECTIONS FOR THEIR PREPARATION.

*F. P. Rutherford, Ph.G., D.D.S.**

The purpose of this paper is to give a number of formulas for tooth powders and tooth pastes of approved excellence, at least from the standpoint of the pharmacist, who judges chiefly by the favor in which they are held by the public.

Of these formulas it can be said that all are more or less popular, some being long established favorites with large annual sales; that many are excellent and are harmless, unless the presence of abrasives or of organic fermentable substances such as orris root, arrow root, sugar, honey, etc., may be regarded as possible source of harm.

Although there is a general resemblance in the constituent elements of tooth powders, tooth pastes and allied preparations, many of the special combinations here presented have not heretofore been made public. In connection with their publication here, only such general directions for their preparation will be given as are deemed necessary to secure good results from the pharmaceutical standpoint.

In making this class of preparations not only must the quality of the materials to be used be taken into consideration, but also the proper proportions for and manner of combining these materials, so that the preparation when finished shall be

*Instructor in Bacteriology and Pharmacology, Pennsylvania College of Dental Surgery.

pleasing to the eye and agreeable to the taste, as well as correctly adapted for its intended use.

The object of a tooth powder is to aid in removing organic matter, food débris, deposits, etc., which adhere to the teeth, and also to neutralize the acid products of the fermentation of organic substances.

The habitual use of pumice or cuttle-fish bone in powders, with a view to whitening the teeth, is probably more or less harmful, as these substances, when used to any considerable extent, certainly wear away the enamel and expose the dentine; this ultimately giving the teeth a yellow tinge, the object sought for being thus defeated.

In making a powder the ingredients should be sifted separately through a bolting cloth (120 fine) sieve, which reduces the powders to the finest possible state. They are then to be intimately mixed and passed through a No. 60 sieve several times. If a color is desired, carmine (No. 40) may be used. This should be first dissolved in a little ammonia water; then add the carmine solution, not to the entire mass, but to a portion only of the precipitated chalk, a sufficient quantity of the chalk being used to take up the ammonia solution and form a damp powder; spread this out on paper; it will dry very readily, and then can be powdered and passed through a bolting cloth sieve, after which it should be added to the balance of the powder and thoroughly mixed.

In the following formulas the names of the ingredients have been Englished and not Latinized, as in the official names of the Pharmacopœia. This plan at least secures linguistic uniformity, and avoids the mixture of English and hybrid Latin so often found in recipes and prescriptions. For convenience the Roman numerals and the usual signs and abbreviations for measures of weight and volume have been employed.

Formula No. 1.

Hygienic Tooth Powder.

R. Chalk, precipitated.....	℥xv.
Borax	℥i.
Saccharin	grs. x.
Oil of orris.....	grs. x.
Oil of wintergreen.....	mins. xxx.

This formula may, if desired, be changed by adding oil of rose instead of wintergreen. The quantity of oil of rose to be

added is three drops. The powder may be tinted by adding twenty-five grains of carmine dissolved in ammonia water, after which proceed as previously directed.

Formula No. 2.

Saponaceous Powder.

R.	Chalk, precipitated.....	℥xii.
	Castile soap, powdered.....	℥ii.
	Saccharin	grs. viii.
	Orris root, powdered.....	℥ii.
	Oil of rose.....	gtt. iii.
	Carmine	grs. xxv.
	Ammonia water a sufficient quantity to dissolve the carmine.	

One of the great objections to a saponaceous powder is that if the secretions of the mouth should be slightly acid this acid will precipitate the soap, thus forming a resinous coating on the teeth which is difficult to remove. It also leaves in the mouth a more or less unpleasant taste, very objectionable to many patients.

Formula No. 3.

R.	Chalk, precipitated.....	℥iii.
	Magnesium carbonate.....	grs. l.
	Castile soap, powdered.....	℥v.
	Orris root, powdered.....	℥iiss.
	Thymol (dissolved in alcohol).....	grs. ii.
	Oil of peppermint	gtt. c.
	Oil of cloves,	
	Oil of lemon,	
	Oil of eucalyptus, of each.....	gtt. l.
M.		

Formula No. 4.

Cuttle-Fish Bone Powder.

R.	Cuttle-fish bone, powdered.....	lb. ss.
	Chalk, precipitated.....	lb. i.
	Orris root, powdered.....	℥viii.
	Oil of lemon.....	fl. ℥viii.
	Oil of neroli	fl. ℥ss.
M.		

Formula No. 5.

Camphorated Chalk.

R.	Camphor gum.....	℥i.
	Chalk, precipitated.....	℥xvi.

Dissolve the gum camphor in alcohol, mix the alcoholic solution with chalk, and sift.

Formula No. 6.

Camphorated Tooth Powder.

- R. Chalk, prepared, powdered,
 Chalk, precipitated, of each..... lb. i.
 Castile soap, powdered..... ℥iiss.
 Oil of peppermint..... ℥vss.
 Camphor, powdered..... ℥i.

Dissolve the camphor in the necessary quantity of alcohol of best quality, thoroughly mix all the ingredients, and pass the mixture through a fine sieve. This tooth powder should be used only every five or six days; used too frequently, an injurious effect on the nervous system may result.

Formula No. 7.

Quinin Tooth Powder.

- R. Orris root, powdered..... ℥xii.
 Chalk, precipitated..... ℥xxxvi.
 Cuttle-fish bone, powdered..... ℥iii.
 Oil of rose..... m. lxxx.
 Quinin sulphate..... ℥ii.
 Castile soap..... ℥ii.
 Oil of cinnamon..... m. lxxv.

Mix in the order named, and thoroughly triturate with the oils and pass through a fine sieve three times.

Formula No. 8.

Dentifrice (Hudson's).

- R. Chalk, precipitated..... lbs. ii.
 Myrrh, powdered..... ℥iv.
 Orris root, powdered..... ℥viii.
 Rose, pink..... ℥i.
 M.

Formula No. 9.

Rose Dentifrice.

- R. Chalk, precipitated..... lbs. x.
 Myrrh, powdered..... lbs. ijss.
 Orris root, powdered..... lb. i, oz. ix.
 Sugar, powdered..... lbs. ijss.
 Borax, powdered..... oz. ijss.
 Oil of bergamot..... ℥i.
 Oil of lemon..... ℥ii.
 Oil of lavender..... ℥i.
 Oil of rosemary..... ℥ss.
 Oil of cinnamon..... ℥ss.
 Oil of citronella..... m. xv.
 Oil of neroli..... ℥ss.
 Oil of orange..... ℥i.

Color each 25 pounds with 1 oz. of carmine dissolved in ammonia water. The ammonia solution of carmine should be added to

the precipitated chalk (about one pound); this should then be spread out to dry; after it is dry, pass through bolting cloth sieve, and then mix the powder with the other ingredients, adding the flavor last. Mix thoroughly, and pass the powder through a sieve.

Formula No. 10.

Dentifrice (Dr. Darby).

R. Chalk, precipitated.....	lb. i.
Castile soap, powdered.....	℥iiss.
Oil of rose.....	gtt. viii.
Oil of wintergreen.....	gtt. xl.

Mix the oil of rose and oil of wintergreen together, and then add it to the powders; pass the flavored powder through a sieve.

Formula No. 11.

Peruvian Dentifrice.

R. Chalk, precipitated.....	℥viii.
Magnesium carbonate.....	℥i.
Cuttle-fish bone, powdered.....	℥ii.
Red cinchona bark, powdered.....	℥i.
Castile soap, powdered.....	℥ss.
Cassia bark, powdered.....	℥ii.
Camphor, powdered.....	℥ii.
Oil of lavender	℥ss.
Oil of sassafras	℥ss.

Mix well and sift.

Formula No. 12.

White Rose Saponaceous Dentifrice.

R. Chalk, precipitated.....	℥xvi.
Castile soap, powdered.....	℥iv.
Orris root, powdered.....	℥iv.
Magnesium carbonate (heavy).....	℥viii.
Oil of rose.....	℥.℥ss.

M.—Triturate the oil with one ounce of the chalk before adding the rest of the powders; then sift three times.

Formula No. 13.

Court Dentifrice.

R. Chalk, precipitated.....	℥lx.
Carminc	℥ii.
Oil of rose	m. l.
Oil of Pimento	m. l.
Oil of cloves	m. l.
Oil of cinnamon	m. xx.
Oil of lemon	m. xx.
Grain musk.....	grs. x.

M.—Triturate the musk with the carmine and $\frac{1}{2}$ ounce of chalk for five minutes in a wedgewood mortar, then add the oils, one by one, with

about two drachms of chalk along with each oil; continue trituration for at least ten minutes with half the chalk, then add the rest of the chalk, and sift three times.

Formula No. 14.

Dentifrice.

R.	Chalk, prepared, powdered.....	℥viii.
	Orris root, powdered.....	℥iv.
	Cuttle fish, powdered,	
	Sugar, powdered,	
	Castile soap, powdered.....aa	℥i.
	Borax, powdered.....	℥ss.
	Cinchona, yellow bark, powdered.....	℥i.
	Cochineal	℥i.
	Oil of rose.....	drops xx.

M.

Formula No. 15.

Dentifrice.

R.	Chalk, prepared, powdered.....	℥xv.
	Castile soap, powdered.....	℥i.
	Saccharin, powdered.....	grs. x.
	Thymol, powdered.....	grs. xv.
	Camphor, powdered.....	grs. xxx.
	Vanillin, powdered.....	grs. v.
	Oil of rose.....	gtt. vi.

M.—Rub camphor and thymol together in a mortar, and warm gently, so as to render the mixture liquid; then add the chalk in small portions at a time, reserving about one ounce; next add the other ingredients, the perfumes being first separately rubbed with the remainder of the chalk.

Formula No. 16.

Dental Cream.

R.	Castile soap, powdered.....	lbs. jss.
	Chalk, precipitated.....	lbs. xij.
	Sugar, powdered.....	lbs. ijss.
	Magnesia, calcined, powdered.....	lb. i.
	Oil of wintergreen.....	℥iv.

Mix thoroughly and sift through a fine sieve.

TOOTH PASTES.

In the preparation of a paste the operator must use much care and judgment in order that the paste may not be too soft or too hard. All of the ingredients should be thoroughly mixed and sifted through the finest sieve before adding the excipient to form it into a paste. The excipients used are honey and glycerine.

Formula No. 1.
Myrrhine Tooth Paste.

R. Chalk, precipitated.....	54 parts.
Arrow root, powdered.....	5 "
Myrrh, powdered.....	7 "
Oil of cinnamon.....	1 part.

Glycerin a sufficiency to make a paste. A mixture of 1 part of glycerin and 2 parts of chloroform water is better than glycerin alone.

Formula No. 2.
Areca-Nut Tooth Paste.

R. Chalk, precipitated.....	℥vi.
Areca-nut, powdered.....	℥iss
Cuttle-fish bone, powdered.....	℥ss.
Honey	℥ii.
Glycerin	℥ss.
Oil of lavender	gtt. x.
Oil of cinnamon	gtt. vi.
Oil of rose	gtt. iii.

Water sufficient to make a paste.

Formula No. 3.
Tooth Paste.

R. Chalk, precipitated.....	℥xxi.
Orris root (Florentine), powdered.....	℥viiiiss.
Potassium bitartrate, powdered.....	℥iiiss.
Sugar, powdered.....	℥iii.
Borax, powdered.....	℥vi.
Oil of wintergreen.....	℥viiss.
Glycerin,	
Honey, of each.....	℥viiss.
Carminc	℥i.
Ammonia water.....	fl.℥ss.

M.—Dissolve the carmine in the ammonia water and incorporate with a portion of the precipitated chalk, and dry; powder this mixture and pass through a sieve three times. Mix the other ingredients in rotation, adding glycerin and honey last.

As all the formulas above given call for sifted powders, the operator should know something about the different sieves. The ordinary sieves are usually made by stretching wire gauze over a flat wooden ring, keeping it in its place by slipping over it and tacking securely a narrower wooden ring of slightly greater diameter. Covered sieves or drum sieves have tight covers for the top and bottom.

The degree of fineness of powder is designated in the United States Pharmacopœia by the number of meshes to the inch present in the sieve. The five different sizes are as follows:

Very fine powder should pass through a sieve having eighty or more meshes to the linear inch—No. 80 powder.

Fine powder should pass through a sieve having sixty meshes to the linear inch—No. 60 powder.

Moderately fine powder should pass through a sieve having fifty meshes to the linear inch—No. 50 powder.

Moderately coarse powder should pass through a sieve having forty meshes to the linear inch—No. 40 powder.

Coarse powder should pass through a sieve having twenty meshes to the linear inch—No. 20 powder.

For the very finest powder bolting cloth is used for the sifting medium. The powder is No. 120 fine.

In a subsequent issue of the DENTAL BRIEF a series of formulas for tooth and mouth washes will be given, with directions for their preparation in accordance with the best pharmaceutical usage.

OUR STATE DENTAL LAWS.

C. H. Reynolds, B.A., D.D.S., Strathroy, Ont.

In the DENTAL BRIEF of January number of 1898, appeared resolutions drafted by the Northern Illinois Dental Society, asking the National Dental Association and the National Association of Dental Examiners to remedy the existing conditions regarding the interstate practice of dentistry; which resolutions were, I believe, submitted to these bodies. No final action having been taken, I deem it not out of place to again bring this vexed question to the attention of the readers of the BRIEF, with a view to stimulating further discussion and securing more definite action at the next meetings of the National Associations.

While I heartily approve of the efforts that have been put forth to secure legislative protection against empiricism, I cannot but hope that regulations will soon be framed permitting all graduates of reputable dental colleges to practice in any one of the States without undergoing repeated examinations by State Boards. If the National Dental Association, National Association of Dental Faculties and the National Association of Dental Ex-

aminers will adopt a uniform standard for matriculation and graduation in all dental colleges, and take measures to see that that standard is enforced, it would be easy to secure an interstate recognition of all graduates who leave their college halls with their degrees of Doctor of Dental Surgery.

At present many boards of examiners say your credentials are not a sufficient guarantee of your professional ability, we therefore require you to pass a rigid examination before us; we recognize graduates of our State schools as being qualified, but have not full confidence in those from colleges and universities of other States. We regard ourselves as more competent to judge of your fitness to practice than the faculties and examiners of the institutions from which you have graduated.

How absurd that an experienced college professor, eminent in his specialty, should be obliged to submit to re-examination, sometimes in company with those who have never attended a course of lectures before he is allowed to legally enter upon practice in another State.

If all the dental educational institutions in the United States in good faith conformed to reasonable requirements, framed by the National bodies above mentioned, uniform standard of fitness and training would be established and the qualified dental graduate or practitioner of each State could then have secured to him the full right to enter upon the practice of his profession in any State in the Union, unhindered by unnecessary and vexatious re-examinations.

Let agitation upon this important question be maintained in all representative dental organizations until the needed reform is secured.

SAVE THE NATURAL TEETH.

B. F. Arrington, M.D., D.D.S., Goldsboro, N. C.

To preserve and perpetuate the use of the natural teeth should be the first thought and chief purpose of every dental student and graduate, and to that end every advance in dentistry should point.

First principles and duties should never be lost sight of, or dentistry will fail of its mission. To preserve the natural teeth in a state of comfort and usefulness and normal in appearance

should be regarded as evidence of higher professional skill than the crowning of stumps or bridging of chasms. The true science of dentistry consists in the successful treatment and preservation of the natural teeth, and not in the substitution of manufactured teeth or of gold crowns. With the oculist, the first thought and effort is to save the natural eyes and to substitute artificial ones only when skill and effort to preserve the natural have failed. As with oculists and the eyes, so should it be with dentists and the teeth; but now the first thought with many young men when they enter a dental college, is to learn how to make crowns and bridges and to insert attractive gold fillings; features in the preparation for the practice of dentistry which should be the last to be considered.

The first thought in practice should be to keep the gums in a natural state, to preserve the teeth without filling, and to use the forceps only when their employment is imperatively demanded in the interest of the patient. These are the principles which must rule in practice or the best results cannot be assured, and the true worth of dentistry will not be definitely realized and rightly appreciated by the public. Let us hope the time is not far distant when crowning, bridging, extravagant filling and reckless extracting will be but seldom practiced.

Notwithstanding the increase of dental colleges, I will venture the assertion without fear of successful contradiction, that in proportion to the number of teeth decayed there are fewer preserved by treating and filling at the present time than there were thirty or forty years ago, and that the dental literature of that period furnished relatively twice as much matter pertaining to the treatment and preservation of the natural teeth as does the literature of to-day.

That such a state of things should exist in this advanced period of professed professional progress is a subject which, in the interest to the profession and of humanity, demands serious consideration. To preserve the natural teeth without filling and, if that becomes necessary, to save them without disfigurement by display of material should be esteemed the most important features in the practice of dentistry. If such a line of practice should be persistently followed, commencing with the period of childhood, there would rarely be necessity for artificial dentures, large fillings, crowning or bridging, extreme features in practice which frequently are resorted to more for personal and pro-

fessional notoriety and pecuniary gain than for tooth-saving or for profit to the patient.

The ability to manipulate gold effectively and artistically in filling cavities, and to execute plate, crown- and bridge-work practically and beautifully, is an accomplishment in point of manipulative dexterity in use of metals that merits commendation and praise, as does the successful work of an expert in any line of mechanism, but, whether it be at the hands of a graduate in dentistry or a laboratory apprentice, is nothing more nor less than the same manipulative tact and talent cultivated and applied in the use of metals possessed by the machinist or jeweler.

Some of the most beautiful specimens of plate work, bridge and crowning ever executed has been the work of apprentices or day and job workers in dental laboratories. Were there less of such talent and less use made of local anæsthetics for "painless extracting," the promise of the future of the dental profession, and for the preservation of the natural teeth, would be better than at present.

The wholesale extraction of teeth and substitution of artificial dentures is most abusive of the true principles that should regulate and rule in practice, and is bringing just reproach upon the profession. The surgeon of to-day who spares the knife and saw and saves a limb, ranks first among surgeons; so it should and must be with dentists and their special work.

Our effort should be to attain the highest professional skill along the lines of conservative practice, to the end that humanity may be blessed through preservation of the natural teeth. The work suggested and results attainable cannot be accomplished in a day, a month or a decade, but with a full acceptance of the principle involved, fortified by thorough practical application in every-day work, it will be only a question of time when the profession will advance to a higher plane of usefulness, and as a result occupy a higher position in public esteem.



ABSTRACTS AND SELECTIONS.

DENTISTS IN THE ARMY AND NAVY.

W. T. Stark, D.D.S., Kansas City, Mo.

Late Major in the Volunteer Service.

Since the Columbian Dental Congress considerable space in dental journals has been devoted to the "Employment of the Dental Surgeon in the Army and Navy."

Much more might be said on the propriety of advocating such employment, but to the writer there seems to be but two points for consideration: the first one, and the one that, apparently, appeals most strongly to the profession (judging by the number of letters received from prospective applicants for positions, and from writers on the subject), is the opportunity given to recent graduates and young dentists with limited practice to secure remunerative employment; the other consideration, very naturally, is the need that the military and naval services have for a dental department.

If the first consideration were the only one, it could be easily disposed of by the statement that the departments of the Government for war are not organized for purposes of charity or to give employment to those otherwise unable to succeed in a profession of their own choosing.

On the other hand, if the Army and Navy really need an additional department to those they already have (as they may), there is no reason under the heavens, or in the "Regulations," why they cannot ask for what is necessary.

It may be that, as they do not ask for our professional services in a special department, they do not want them, and to attempt to force those services on to them savors some of soliciting.

And what is to be gained by the dental profession, when it shall don the "army blue" of Uncle Sam's service?

According to the Hull bill, which did not pass, there would have been added to the Army one hundred dentists, with the rank of first lieutenant, mounted; each commission would entitle the holder to draw one hundred and fifty dollars each thirty days, to wear a black blouse of army cut, with forceps rampant for a collar ornament, or some other device significant of the service he is to give, and an opportunity to give that service to the

enlisted men in garrison at the least possible expense to the Government.

Furthermore, the officers and their families would supply a very small part of his practice, and none of it, save in an emergency.

It is not possible that it should be otherwise in such a place as an army, where discipline demands marked social distinction.

If a dentist should be sent into the field at all, it would probably be as an adjunct to a division hospital (a not unmixed good), for the purpose of relieving immediate suffering of dental origin.

In the event that this premise is the true one, and it is certainly reasonable, he would find himself with so much time on his hands that he would likely be detailed to some executive or clerical position in the medical department, which could be as well filled by an acting hospital steward or private of the corps.

During the last summer, the division hospital did not prove to be an unqualified success, in the camps of instruction, even, though located so that certainly there could have been no lack of opportunity for proving its usefulness, that would be available under circumstances of actual warfare, and it is by no means certain that they will become a permanent fixture.

The dentist with a regiment on the march would be looked upon as an impediment, and be so considered by every man or officer in the command, and he and his traps would be consigned to perdition at every move or halt.

The Army, as a whole, looks upon the medical department as a very necessary evil, and during the past summer much of it was considered unnecessarily so.

The Army, including the M.D., would look upon the dentist as an unmitigated evil, and his lot would not be a happy one—should he succeed in worming in, which, for the sake of the dignity of the profession, I trust will not be until he is sought by those whom he would serve.

From personal experience, in the volunteer service, in which the requirements for enlistment are not so strictly observed, owing to the usual urgency for volunteer recruiting, I am fully convinced that there can never be sufficient disease of dental origin to produce any appreciable interference with an army's availability for any service. It is safe to say that in the field the forceps would be the panacea for most dental trouble, because

the soldier would not submit to any extended operation; under such circumstances, he would select his remedy.

If the young dentist will enlist in the Army, no doubt he can attain to the position of hospital steward, receive his pay and have all the practice he wants, in a way, in any of the different garrisons in the country or out of it.

It will be a long time before a commission comes his way, and if by any hook or crook he should break into the Army and gain a coveted commission, with a chance of promotion, we will soon see him devoting his spare (?) time to his Bible (The Regulations) and his prayer-book (The Army Register); Regulations to show him how to be saved from court-martial; Register in which he sees but one prayer, "May every file above me die or resign," that he may see himself advanced.

Western Dental Journal.

ARMY DENTISTS.*

Morris I. Schamberg, D.D.S., M.D.†

The late war has brought to light many improvements, ay, necessities, that are requisite to a successful military campaign. Furthermore, it has proved that it is not best to await the outbreak of actual warfare before adding such necessities. Our regular army was found to be too small, various departments were proportionately so, and there was a total absence of departments that would have added materially to bring our army nearer the state of perfection. . The fact that there was no department of dentistry, and that there was great need for that addition, was forcibly impressed upon the mind of Representative Hull, with the resultant clause to his bill, calling for the appointment of one hundred dentists. This bill not having been favorably acted upon as yet, allows for a free discussion of the advisability of starting this particular branch of the service.

Numerous articles have been written for and against the establishment of this department, for it must be remembered that the subject was receiving considerable attention even prior to the late agitation of military affairs.

* A criticism on the preceding paper.—ED. BRIEF.

† Late Acting Assistant Surgeon, United States Army.

It was, indeed, surprising to read in a recent edition of a Western dental journal, the opinion on this matter of a man holding the degree of doctor of dental surgery, and who had served as a major in the volunteer service. The writer has proceeded to set up ridiculous reasons for the proposed legislation, and then, in demolishing them, has thought that he has controverted all arguments in its favor.

The writer says: "The consideration that appeals most strongly to the profession is the opportunity given to recent graduates and young dentists with limited practice to secure remunerative employment."

He further states that "the departments of the government for war are not organized for charity or to give employment to those otherwise unable to succeed in a profession of their own choosing." These allusions that he makes to the profession trying to force its services upon the government, for the purpose of giving profitable occupation to dentists, are too sordid to deserve any notice whatsoever. While a few men might have written encouragingly about the advisability of organizing a department of dentistry for the army and navy, and in such articles had spoken of the benefits the young practitioner would derive from the adoption of such a department, no one with a reasonable amount of judgment would suppose for one moment that the government would be induced to go to such a great expense without seeing the necessity for such a measure.

Is it not natural for the profession, knowing the necessity for the proper care of the teeth and mouth, knowing the relation between the condition of the masticating organs and the general health, knowing that every soldier at some time or other requires advice or treatment for these parts—is it not natural that it should be disposed to encourage the adoption of the army and navy dental surgeon? It is the profession's duty to depict its possibilities in that direction, to show its necessity, and to suggest the proper procedure for the establishment of an army dental department.

While serving at Chickamauga, many soldiers came to me for the extraction of teeth, and many more could have been relieved had I had proper filling materials and instruments with me. Nothing tends to bring any condition in the mouth to a crisis as does the life that a soldier leads in the field. Exposed to all kinds of weather, run down through fatigue, dependent

upon rations which, as a rule, put to a severe test the masticating organs, and non-painstaking as to the hygiene of his mouth by reason of this peculiar life, the soldier proves to be the most needy consultant of the dentist.

During six and one-half months of active service in Porto Rico many cases of interest from a dental standpoint presented themselves to me. Rapidly growing alveolar abscesses were of frequent occurrence, and one case of rather extensive necrosis of the inferior maxilla called for operation. The above mentioned cases, together with numerous conditions of the mucous membrane which called for treatment, such as ulcerative stomatitis, spongy gums, chancre of the tongue, etc., are proof of the fact that the vicissitudes to which the soldier is subjected render him an easy victim to some of the more serious oral affections.

The question is often asked, Cannot the physician do the necessary extraction of teeth? You might just as well ask, Cannot a dentist treat and confine a pregnant woman? Both have about an equal knowledge of the duty they are called upon to perform, and in both instances does the patient suffer the uncertainty of success.

Again, the query is put, Why should not the soldier be referred, as in the past, to the dentist in the neighboring town or city; and again we might add, for the same reason that he is not thrown upon his own resources and sent to a physician of the adjacent districts when medical attention is needed. But the opposition says, the medical man is needed in time of war and the dental man is not, for he would be unable on account of the manœuvres of war to do other than extracting. In answer, I will take the liberty of stating that the dentist in times of peace would be much busier than the physician in preparing the soldier for the test of war. There is scarcely an individual that at some time does not require the services of a dentist. One can then realize how much work would devolve upon a dentist in care of a regiment of a thousand men.

Not alone the scientific thinker, but the most practical practitioner, attributes a large proportion of gastric and intestinal disorders to defective mastication of food. During the late war this was found to be the most troublesome class of diseases.

Our Western friend assumes that the standard of the dental man will necessarily be a poor one. The stringent examinations given in all the departments of the government service will pre-

clude the possibility of any improperly trained dentists getting into the service. Should a man prove to be unworthy of the position, he must expect to be treated as in other walks of life, with little consideration. A conscientious man of gentlemanly and dignified instincts entering the army with but "forceps rampant for a collar ornament" will carry with him all the respect that any man of character will in other departments, and I predict that if he be a man of ability, as he necessarily should be, the officers and their families will supply a not very small part of his practice.

True, the army dentist will share with other members of the service some leisure moments. These can be advantageously spent in acquainting himself with principles of surgery, and in consequence of this advanced knowledge the army dentist will be able to lend much assistance upon the battle-field. There are many other duties which he might be called upon to perform in common with the surgeon, such as the instruction of the hospital corps in drill regulations and points of discipline.

As the medical men are encouraged to perform original research work and thereby advance the standing of their profession, so would the dental men have ample opportunity to collect and report interesting statistics as to the wearing qualities of certain filling materials, the advantage of one alloy or cement over others, etc. Their cases would be constantly before them, and the uniform employment throughout the service of certain preparations would afford most valuable information as to their efficiency. So, while a man may not be tied down to actual office practice the entire day, he will have many other duties to perform which will keep him busy.

There are a few points about the establishment of an army dental department that suggest themselves to me. One is that the department should, without doubt, be in close relation with, if not directly under, the jurisdiction of the medical department. Dentists should be taken into the service with the rank of second lieutenant, giving an opportunity to the most worthy to rise by promotion to the position of captain or even major. Dentists who hold the degree of medicine should be given the preference of appointment, in that they can be called upon in an emergency to perform the duties of a surgeon.

International Dental Journal.

DENTISTRY IN RUSSIA.

A. M. Wolff, Warsaw.

With the general progress of Russia dental education has also made big strides lately. It can truly be said that dentistry as a science exists only since the year 1891, although as an art it was practiced for at least a century, if not longer. Up to that year there were no proper dental schools, where the student could get a proper training and become thoroughly proficient in all dental operations. Everyone groped in the dark, and whatever he learned from Russian or foreign books, or from his teacher, he tried to carry out in his practice as far as possible, and it is astonishing that with such a system some good dentists have been produced. Anyone who wished to become a dentist had to article himself to a practitioner for three years, then appear before the medical authorities, who in the great majority of cases, had only a slight acquaintance with dental subjects, and be examined by them in a little theory, fill a tooth, or perform some small operations. If he satisfied the examiners he received a certificate, and then went to one of the universities to be examined there again. The subjects of the examination were anatomy of the head, especially of the jaws or oral cavity, dental surgery, pharmacology or histology, and he was also required to extract a tooth from a dead or living body, or both. The successful student got a diploma and title of dentist. The one who failed was referred back to his studies for three months. That diploma is very much coveted by Jews, especially as it gives them the right of living in any part of the Empire (with few exceptions, though), whereas the Jew not possessing such or a similar diploma is compelled to reside within the so-called Pale of Settlement, which comprises the north and southwestern provinces of the country.

In the year 1891 a new dental act was passed, whose object was to form a class of dental surgeons superior to the existing dentists, and to a great extent the law has succeeded and proved highly beneficial. Private schools under Government supervision were soon established in all the university towns. The first one was Dr. James Levy's, at Warsaw. It was opened in August, 1891, and has already turned out a goodly number of dental surgeons, scattered now all over Russia, and giving the

populace all the benefits a skilful and educated dentist can confer on the public.

Young people of either sex are received as students of the school during the months of August and September if they possess a certificate of six classes—or standards, as you call them of a classic gymnasium, which includes, among other subjects, a fair amount of Latin and Greek, or the certificate of a *Real-schule* where the dead languages are not taught at all, but greater stress is laid on mathematics, mechanics, natural science, etc. At the dental school the student spends two and a-half years, which are divided into five terms, or semestres as we call them here, of six months each. The first two semestres are devoted to mechanical work and lectures on anatomy, mechanics, chemistry (organic and inorganic), and histology. Before Christmas there is an examination in anatomy, which is, however, of no great importance, as it is not obligatory. In May the students are examined in the four subjects they were studying, or, at least, were supposed studying during the year.

Those who pass the examinations are transferred to the third semestre, and those who fail have to come up again in a few days, or at the end of the summer, as the examiners decide. Some students take up one or two subjects in May, and leave the rest for August; in short, they are allowed perfect freedom in this respect. Those who pass the examinations are allowed to enter the clinics at once, and the wiser ones take advantage of this permission and work some part of the summer, which is just the best time for beginners, as the assistants are not so busy and can devote more time to each of them. The school is opened all the year round, but lectures cease during ten or eleven weeks in the summer.

The second year, the students spend all the morning in the clinics, which are opened from 9 to 3, or later. The chairs being arranged in two rows, the workers are divided into two groups, each being entitled to a front chair only for three hours in the day, after which the student must retire to a back chair unless no one claims his front place. I must say that the great majority of students work with a determination to learn as much as possible during the short time they are at school. I have seen some of them stick to their work for weeks and weeks six hours each day at a stretch, just leaving off for a few minutes to snatch a cup of tea or something else.

I said above that a new dental law was made in 1891. I ought to add that the new law has neither abolished the old class of dentist, nor, unlike the English dental act of 1878, put an end to their increase. Even now anyone without any preliminary examination can apprentice himself for three years to a dental practitioner, and then, himself, become a dentist, and so we have now two sorts of men practicing the dental art, dentists and doctors of dentistry, between whom there is not much love wasted. The latter look down upon the former, ignoring the fact that these men had not the opportunities to learn which they enjoyed, and even go so far as to express opinions that all sorts of drastic measures ought to be taken against the dentists, and at least deprive them of the right of doing any surgical work at all. These doctors say they have at heart only the interests of the profession and the public weal, but I daresay they are a little bit jealous of the fair incomes enjoyed by some of the dentists who have been in practice for twenty years and upwards, and gained quite a reputation.

Medical men are allowed to practice dentistry like any other branch of medicine without an additional dental qualification, and some of them, especially in the larger towns, avail themselves of that right, and manage to build up good practices. On the other hand, men who have been properly apprenticed for three years and passed a practical examination, can set up in business as dental mechanics, but must not call themselves dentists. As the examinations are not, however, very severe, and it is reckoned so much more respectable to be a dentist, almost all prefer to sit down to books for a time, and become qualified.

As it is rather difficult to learn surgical work in a private practice, some young people, after spending a year or more at a dentist's, or even straightway, enter a dental school, where they are not reckoned as students (not possessing the required certificate), but as private pupils of the proprietor of the school, who, by the recent decision of the Medical Council, may receive as many of them as he likes. The first year, like the students and together with them, they work in the mechanical room; the second and third year separately from them in clinics, and having but little theory to learn devote all their time to practical work. The students look upon the pupils as intruders, and lively quarrels break out occasionally among them. At the present

time the fifth semestre having completed their training, and left, there are forty-eight on the second semestre, thirty-eight on the fourth, and seventy private pupils. According to religions no more than twelve belong to Christian denominations; all the rest are Israelites.

Students and pupils flock here from all parts of the Empire—from the Baltic provinces, the Crimea, Caucasus, the Ural district, and even far-off Siberia. There are three from there this year, including a young lady. These Siberian lovers of dentistry had to travel for ten days and ten nights by direct line from Krasnoiark to Moscow, and thence taking the train for Warsaw; but, before embarking in the train, traveled by steamer, road, and horseback—in fact, used every mode of locomotion known to humanity. One of them is a rum fellow. He came armed with a pistol and a revolver, and was much surprised to hear that people actually walk out at night without arms, and can even be fined for possessing them without a license.

Here is a peculiar fact to be noted. Out of the total of 156 receiving instruction at this school there are only 48 males, including a few paterfamilias, and 108 females, mostly maidens, but a few matrons are also to be found. Altogether they form a most heterogeneous lot, in ages varying from 17 to 35 and more; almost all of them speak two languages and understand more. Besides Russian and Polish, you hear German spoken very often, then French occasionally, and a little English, three of the students having resided for some time in Canada, the States, and England, besides the proprietor's son, who has graduated in America, and a young lady who had an English governess and speaks the language fluently. By-the-bye, I may notice here that the English tongue is spreading in Russia, and is being taught now in all commercial schools and many high-class educational establishments. This dental school is veritably a "Ladies' Academy," where men are just suffered to remain.

The restless spirit which has got hold of womankind of the civilized world has manifested itself in Russia, too, and girls are no longer content, having completed their course of study at a gymnasium or other middle school, to stay at home, help their mothers, and be a burden to their fathers until a suitable marriageable man turns up, but, like their brothers, want to go out into the wide world, see a bit of life, and make their own living. Hence, great was their delight when a medical college for

women was established in the capital. Having in a short time mastered the required amount of Latin, they entered that college, studied hard for five years—a good many struggling all the time with poverty—left with medical diplomas in their pockets, and set out to work side by side with the lords of creation, and, together with them, to relieve the ills of suffering humanity. They soon showed to an astonished race what educated women with wills and ideas of their own can do. There was nothing too difficult for them; the prejudices which may have lingered yet in some people's minds against them soon vanished like a dream; they were welcomed as best friends in the mansions of the rich and the hut of the peasant, bringing light and consolation wherever they appeared. They excited the astonishment of everyone, and even our medical men admitted that those frail little women were superior to a good many of them. Some of these lady doctors entered the service of the "zemstvo" (a sort of county or district council), and accepted situations and work hard enough to break down a strong man.

Our medical men, for natural reasons, prefer to settle down in the towns, and so the large country districts are left without medical help. The "zemstvo" engage medical men and women, and put them in charge of districts occupying a larger or smaller area, but, in any case, too big for one person to manage. Some doctors, especially those in charge of hospitals, have a fixed place of abode; others have to be at the beck and call of anyone that is ill, and their lot is a very hard one indeed. The country roads are fit to be used only in summer and winter, when the snow lies thick on the ground; at other seasons they are impassable, and there is no greater torment than to be driven over them, especially in an old broken-down peasant's cart open to all the cold winds that sweep over the great Russian plains. The salary is usually less than £100 per annum, to be gradually raised to £130, and seldom exceeding £150, including house rent, traveling expenses, etc. Besides, they suffer so much for lack of society; for weeks they hardly meet with an intelligent person except the parish priest; papers and letters reach them very irregularly, and often are lost altogether.

Many a woman has fallen a victim to her arduous task, but that did not deter others from following in the same footsteps. Jewish women, as well as Christian, excelled in this field of philanthropy. In 1882 or so, for some reason, the medical col-

lege was closed, and remained so until 1897, when it was opened again and 180 students received.

But a queer mania has got hold of our colleges lately—before open to all without distinction of race and creed; now they vie with each other in reducing the number of their Jewish students. So the medical college for women has decided to admit only 2 per cent. of Mohammedan and 3 per cent. of Jewish girls.

And so a good many of them, with a bitter disappointment, having no other choice, enter the dental schools, where they work with a will and energy worthy of success. The fact is, however, that mechanical work is not suitable for a good many of them, but in the clinics they get on better, doing careful and neat work, and often surpassing men in that respect.

On the whole, I can say they make fair, and some even good, operators, mediocre extractors, and, I may be pardoned for saying so, but indifferent mechanics. Setting up in business, they either refuse mechanical work, or call in the aid of a mechanic, or, in some instances, marry a dentist and combine the pleasant with the profitable.

Jewish young men, after having knocked at the doors of a few universities, and got refused, and not caring for commercial pursuits, as a last resource decide to become dentists. Their Christian mates have no occasion to do so; there is everything open to them: the army, navy, civil services and a thousand other posts; but to a great number of Jewish young men there are only two lines left—the dental and the old clo' line, and naturally enough they choose the former whenever possible.

The great predominance of students of the Jewish faith is easily explained by the fact that this, as well as the dental school at Odessa, are the only two open to Jews, as all other schools are situated in towns where Jews are not permitted to reside.

Now a few words about the dentist's financial position would not perhaps be amiss. With the increase of the number of practitioners, fees have steadily gone down. In this city, with a population of over 640,000, there are perhaps three practicing dentistry, and deriving from it an income of £2,000 per annum; half that sum is reckoned an excellent income; but the great majority of practitioners would be quite happy with £500 a year, and a good many never get beyond £250, or even less.

House rent is cruelly dear here. For four unfurnished

rooms and a kitchen, the smallest house a dentist can do with comfortably, in anything like a decent thoroughfare, even removed from the center of the city, one has to pay £50 or £60 a year, to be paid in advance by quarterly instalments. The public is getting more capricious and exacting every day, and less willing to pay decently for good work.

The two classes of dental practitioners in this city and in others I daresay, too, appear anxious to rival the shopkeepers in the number and size of their signs, which are usually attached to a balcony on the first or second floor, so that he that runs may read; besides these there are one or two smaller plates on the entrance to their offices, very luxuriantly furnished oftentimes, and in this respect they contrast greatly with the medical men whose small plates can sometimes hardly be noticed among the multitude of tradesmen's signs adorning the gates of houses. Some of the dentists are trying to impress the public with the excellence of their work by exhibiting some of their choicest productions in show-cases. Others are doing a bit of mild advertising in the papers; one delights in calling himself "dentiste Americaine," while a good many not daring to call themselves doctors of dentistry, find consolation in the title of "medécins dentistes," whatever it may mean. So you see, human nature is the same all the world over, and some people have an ungovernable desire to pretend to be bigger pots than they really are. There is a very good provision of the law forbidding one man having more than one place of practice, and thus such things as "Toothmongers' Association, Ltd.," "Dental Supply and Robbery Co.," etc., do not flourish here.

Things are reported to be far better in the interior of Russia. There are fewer patients there, but fees are better, and the dental practitioner is not obliged to kill himself with overwork to make both ends meet. Queer stories reach us from that part of the country. At first, people are not inclined to put much faith in the dentist, and will go for days with faces tied and bandaged to the great mortification of the newly settled practitioner, but little by little the citizens decide to give him a trial, and a few successful cases are sufficient to gain him a reputation among these simple and confiding folk. Artificial teeth are still looked upon as the devil's invention, and eschewed as such; but by-and-bye the old prejudices give way, and some dare-devils boldly walk into the dentist's surgery, and calmly sit down to

have the impression of their mouths taken for a few false teeth, just to see what they are like. It requires a town of at least 10,000 to 12,000, according to the part of the country, to enable a dentist to make a fair living, and save a bit for a rainy day, which few, however, succeed in doing.

Of dental journals, we have one in the Polish tongue, two in Russian, and a third is announced to come out shortly. Foreign papers, especially German ones, are having some circulation. The second Dental Congress is arranged to take place at St. Petersburg, in June next, when some important matters will be discussed. District meetings we have none yet, but dental societies are being formed in the larger centers, and six are already in existence. They will be doing a great amount of good in bringing together members of a profession that have hitherto almost avoided each other.

In short, we are progressing quickly, and I hope in another decade or two shall be occupying an honorable and independent position, as becomes a body of men and women so hard-working and so useful.

The Dentist.

A GREAT MINERAL FIND IN THE STATE OF WASHINGTON.—The reported discovery on Mad river, in the State of Washington, of a great ledge of remarkably rich platinum ore is a matter of much interest to the scientific world, especially as this metal has never been counted among our economic products.

Years ago small quantities were found at Plattsburg, N. Y., and Port Orchard, Oregon; but in neither place were there indications of paying deposits, and in 1897 the entire product of the United States was only 150 ounces. The great bulk of the world's supply comes from the western slope of the Ural mountains in Russia.

Platinum has a steel-gray color, and derives its great commercial value from its infusibility in the most intense heat and its insolubility under extreme conditions. It is used by chemists, jewelers, and manufacturers of incandescent electric lights, and for many purposes requiring a wire that will resist intense heat. Commercially, it is worth about fifteen dollars per troy ounce.

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

QUACKERY IN QUEBEC.

As will be seen by the report of the Dental Association of the Province of Quebec, printed on page 418 of this issue of the BRIEF, the dentists of Quebec have been *working* for the overthrow of charlatanism and quackery, while the dental profession on this side the border have contented themselves with writing, resolving, protesting and "orating" about it. From every standpoint the report in question and the regulations of the Board of Examiners issued in connection therewith make "mighty interesting reading."

In England, also, action is the order of the day, and a law making illegal the practice of dentistry by dental companies has been proposed and will probably be enacted.

These efforts on behalf of professional decency come on a murky night like the freshening breeze which bids us dream of dawn and a day of better things. It is true that the obstacles are many and formidable which here bar the way to effective reform of the abuses in question. In natural antagonism to it are the business instincts of a commercial people, to whom advertising is simply a legitimate and indispensable means for securing business success, and who, although they know that it is the man with cheap and inferior goods who, by the very inferiority of his wares, is compelled to advertise most largely, see nothing intrinsically harmful in the adoption of such methods by the cheap and inferior professional man.

Then there is the instinct for individual freedom common to the English-speaking race; an instinct so strong that license

is too often condoned that liberty may be safeguarded, and so ineradicable that it is woven into the warp and woof of the whole social fabric.

Hence, in seeking legislation against quackery, the first and fundamental consideration is whether the general interests of society demand restrictive legislation against quackery and its methods. Broadly considered, they unquestionably do.

First, there is the consideration that, as carried on in its more obnoxious forms by glaring signs and posters and by obtrusive show cases filled with ghastly trophies of bungling art and preposterous practice, not only are all refined sensibilities outraged, but an offence is committed against public taste and decency, which should no more be tolerated in a civilized community than is the wanton defacement of natural scenery in countries sufficiently far advanced in civilization to no longer sacrifice public decorum to the fetich of a factitious freedom.

Second, there is the fact that the methods of the advertising quack are notoriously fraudulent, and that, as a class, they are so irresponsible that their victims, drawn chiefly from the poorer, and therefore more helpless, classes of the community, are practically without redress when, as is usually the case, they are made the victims of fraud or malpractice.

Third, there is the still more grave consideration that the people at large are of themselves unable to measure the merits or demerits of practitioners of the healing art in any of its branches, except by experience, gained often at great loss, sometimes at the cost of human life; and hence that, for the safety and wellbeing of the community, it is supremely important that interests so often involving the issues of life and death, and in which the patient is so much at the mercy of the practitioner he employs, should be confided only to the hands of men of the highest skill, training and integrity, and that all reasonable regulations enacted by professional organizations to maintain such a high standard should be sustained by law.

Regarding the general question of advertising in its rela-

tions to ethics, there is this to be said, that, at their best, self-praise and self-advertising by professional men have never been held in very high repute, and the consensus of opinion, lay and professional, is that to be even tolerable it must not be blatant; that, for the sake of mere decency, its unabashed nudity should be cloaked under at least some scanty figment of modest drapery.

From the purely professional standpoint, the chief argument against display advertising in all its forms is that, if practiced equally by all, it ceases, as an agency for gain, to be effective for any; if practiced by the few, it ceases to be just to those who refrain.

It is quite evident that if in a given community every professional man advertised upon an equal scale, no one would be bettered, except the sign painter or the printer; that, if the advertising were unequal, the gain would go to the one commanding the most space and making the most display; hence, in the long run, not to the man of most merit, but to the man with most money. The greater and greater domination of money in controlling all avenues to commercial success is, to say the least, not so unmixed a good that its paramount control over professional advancement need be desired.

The fact is that the great mass of the dental profession are reputable, self-respecting practitioners, content to serve the public faithfully and conscientiously, and to await the reward to which true merit is always entitled, and which, as a rule, it is sure to receive. Outside of the large cities and towns it is only here and there men are found who, for the sake of a possibly swifter gain, are willing to outrage the proprieties, and bring not only themselves but the whole profession into disrepute.

As to the broad question of the reasonableness of restrictions upon professional advertising, there is, within certain limits, room for honest difference of opinion; but regarding the practices most obnoxious and most complained of, no decent man, lay or professional, can withhold a verdict of utter condemnation.

The jurisprudence of the United States, as well as of Canada, is based upon that common law of England, which has been fittingly characterized as "the perfection of common sense." If legislative restriction of quackery can be enacted and enforced in England, where, even though class distinctions are still too sharply defined, individual rights are guarded with a sleepless vigilance and a dogged determination which we, in this land of corporate insolence and monopolistic aggression would do well to emulate, surely there can be no insuperable constitutional barrier to securing similar reforms in the several States of the Union. As precedents the enactments in England and Canada will be invaluable aids in that struggle for decent professionalism which is inevitable if dentistry, as a profession, is to survive, and which, we trust, will not be longer delayed.

ARMY AND NAVY DENTISTS.

Attention is called to the papers by Drs. Stark and Schamberg, reproduced in this issue of the BRIEF, relating to the general subject of the employment of dentists in the military and naval service of the Government. Both papers are written from the standpoint of personal observation and experience, and hence are important in their bearing upon the measure embodied in the bill of Representative Hull, which proposed enactment will probably be taken as the basis for further action at the coming session of Congress.

Dr. Stark does not exaggerate the obstacles which the prejudice and conservatism of the regular army and navy establishments offer to the appointment of dentists to either branch of the service under any conditions, much less with rank and pay and opportunities for advancement which should pertain to the position, and be demanded by every dentist who respects himself or his profession.

A similar prejudice still operates unfavorably to the medical corps, whose privileges, rank and emoluments, especially in the navy, are not by any means what the importance of the services

they render, and the dangers and hardships to which, in common with their brother officers, they are exposed, entitle them.

This unjust discrimination is really a survival of the old cast prejudice against "trade" in any form, and hence against physicians and surgeons, as rendering service often menial in its details for pay, a prejudice which, while pretty well eradicated in this country, still has so strong a hold in England that but a few months ago a reputable London practitioner gravely discussed, in an English medical journal, the question as to whether medical men, when visiting their aristocratic "connection," should seek admission at the servants' doorway or at the entrance reserved for the superior classes!

This cast feeling is still so strong in the British army and navy, and the rank, pay and social position of the medical staff is, or was up to a short time ago, so inferior that, notwithstanding the crowded professional ranks in civil life, it was found impossible to secure qualified men in sufficient numbers to fill vacancies. So serious did this insufficiency of skilled surgeons become, that a little more than a year ago rectification of the injustice complained of by the medical corps was made a government measure, and the hope was publicly expressed by a member of the Cabinet that, in view of such action, highly qualified medical men would no longer hesitate to enter the service.

As to the utility and value of skilled dentistry to the men who are fighting our battles on land and sea there can, of course, be no question. A need which is recognized as almost universal in civil life certainly does not grow less urgent, much less cease entirely, upon enlistment in the army or navy; on the contrary, it is a want which is certain to be intensified by the general physical deterioration which is inevitable in the campaigns now being waged in our tropical island possessions, and in which, even when active hostilities cease, large garrisons must be maintained for many years to come.

For these reasons we earnestly favor the Hull bill, or any similar measure which will secure the services of skilled dentists

in the army and navy, and believe that such service, if once properly established, would soon convince the most skeptical of its vast value and importance to the welfare of our soldiers and sailors.

If the examinations for appointment are made relatively as severe as those for the present army and navy medical corps, an exceptionally well qualified body of men can be secured, provided, of course, that such inducements as to rank, pay and promotion are offered as they can accept with due regard to their personal and professional dignity; but upon these vital points there must be no compromise and no surrender.

THE WISCONSIN DECISION.

The significant feature of the decision of the Wisconsin Superior Court, published on another page, is that it unequivocally negatives the power of State examining boards to set up arbitrary standards of reputability for dental colleges. The reasons upon which this decision is based are so cogently set forth, and are so conclusive in character that, although an appeal has been taken to the Supreme Court, there can be but little doubt that the decision of the lower court will be sustained.

For the cause of dental education this decision may work good or evil, according to the spirit in which it is received by the National Association of Dental Faculties and the National Association of Dental Examiners, respectively. Both organizations fully recognize the imperative need for a more advanced preliminary education for dental students, and each should credit the other with an honest desire and purpose to promote that result by all legitimate methods.

There can be no reason why bodies having this common purpose in view should not be able to unite upon some common ground of action, and agree not only upon a reasonable and uniform standard of requirement, but, what is far more important, as it is far more difficult, upon effective means for securing its enforcement by fixed methods common to all recognized

schools, and rigorously exacted from each, under conditions which shall make successful evasion difficult, if not impossible. Such a system is practicable, and it should at once be framed and speedily be enforced by the National Association of Dental Faculties.

In this connection we invite attention to the circular letter of the Foreign Relations Committee of the National Association of Dental Faculties, published upon another page of this issue; it is so temperate in tone, and so pervaded by the spirit of "sweet reasonableness," that it can hardly fail to have a beneficent influence in allaying asperities of feeling and in promoting harmonious and united action upon the questions at issue.

CORRESPONDENCE.

MALTA BEND, MO., June 1st, 1899.

EDITOR OF DENTAL BRIEF.

DEAR SIR:—I read in your issue of April, 1899, a reprint from the *Texas Dental Journal*, relating the experience of the writer in the use of eucaïn B in dental surgery. At the close of the article he requests the experience of others.

Until now I have never written a line regarding my personal use of this valuable preparation, but in compliance with the above-mentioned request I will briefly relate my experience with it, which dates back two and a half years. I had been using it for six to ten months before a line regarding it appeared in American dental journals.

There are two things very decidedly in its favor, as compared with other local anæsthetics; first, its almost absolute harmlessness, so far as toxicity is concerned, and, secondly, the fact that it can be sterilized and resterilized without chemical alteration, neither of which statements are true of cocain.

There is still another factor in its favor: that it produces dilatation of the blood-vessels of the part where injected, hence provoking hemorrhage from puncture or incision, thus tending to lessen the chances of toxicity by being rapidly drained from tissues injected. I feel safe in saying that I have used it with the needle one thousand times, with but two classes of undesirable results: First, if not frequently resterilized, some local

swelling at the point of infection, and, second, in very rare cases, a trace of nausea, lasting for five to ten minutes. I have used it with delicate female patients, who had had very close calls from cocain injections, with no unpleasant after effects whatever, and with very gratifying results.

My method is as follows: With a 5 to 8 per cent. solution, frequently sterilized, I inject a minim at the gum margin at two or more points about the tooth to be extracted, waiting from one to two minutes, when I am usually able to insert the needle into the gum margin without pain. I then infiltrate the gum to the size of a fingernail upon each side of the gum ridge, waiting three to five minutes, and extract. Seventy-five per cent. of cases are without any pain, twenty per cent. are semi-anæsthetized, and in five per cent. there is from only a little benumbing to apparently none whatever.

In one case I recall I prepared the entire mouth for upper and lower dentures. I used the needle, and extracted the upper teeth at the first sitting with no satisfaction whatever from the anæsthetic. At the next sitting half of the remaining teeth were removed under a larger amount of eucain with absolutely no anæsthetic effect. The remaining teeth were removed without any anæsthetic with much better results.

This is the only case I have, thus far, met with where eucain tended to increase the local sensibility. I mention this case in order that my readers may not be disappointed should they, once in a great while, have a similar experience. When properly sterilized you need fear no ill sequence of any sort in the average case. The healing is as rapid as where no local anæsthetic has been used. I am doing quite a good many minor surgical operations under eucain. I think the chief precaution necessary is to frequently resterilize, say, as often as three to five times a week.

F. P. Hulen, M.D., D.D.S.

PUBLICATIONS RECEIVED.

"The Practice of Dental Medicine." By George F. Eames, M.D., D.D.S.

"Chemistry and Metallurgy Applied to Dentistry." By Vernon J. Hall, Ph.D.

"Duality of Voice." By Emil Sutro.

"The Ethnology of the Teeth." By Alton H. Thompson, D.D.S.

CIRCULAR LETTER OF THE FOREIGN RELATIONS
COMMITTEE OF THE NATIONAL ASSOCIATION
OF DENTAL FACULTIES OF AMERICA.

To all who feel any concern in American educational matters, or in American professional affairs, the annual meetings to be held at Niagara this summer must prove of the greatest possible interest. It is probable that grave questions, more profoundly affecting the welfare of dentistry, will be discussed, and it is hoped settled at that time, than have ever been raised in American dental meetings. The far-reaching subjects that loudly demand consideration concern not America alone, but Europe as well. If dentistry is ever to become a profession in fact as well as in name, if it is ever to occupy the position to which advanced men believe it to be entitled, the professional status and tone in both continents must be brought somewhere near the same level. The future welfare of mankind demands there should be some common understanding of professional affairs.

The first dental school was established in America, and for many years the only institutions for professional training were confined to this country. The Dental Doctor's Degree is even now peculiar to American dental schools. For many years, through their excellent practical training, they made American dentistry a synonym for the highest practical efficiency. Then for a time our schools lost ground, and their fame became tarnished through the misconduct of some of them, and the criminal laxness of the laws in certain of the States, which permitted the incorporation of fraudulent colleges that sold their doubtful honors abroad and at home, or granted them *in absentia*. It was not until the organization of the National Association of Dental Faculties that any concerted and determined effort to restore the tone of American dental colleges was made, or any practical attempt to bring them to a higher plane, and to force the fraudulent institutions out of existence.

As the natural consequence of the loose methods and legislation of the past, the reputation of the schools that were doing faithful work and maintaining a high standard suffered from the faults of those which were in the habit of receiving unqualified students from abroad, and whose curriculum of study was altogether insufficient. To those not intimately acquainted with American educational matters, there were no means of distinguishing between the good and the bad colleges. All were, by unthinking and uninformed people, charged with the irregularities of the few, and the consequence is that the reputation of our educational institutions in general has suffered.

Nor was there any complete understanding among the colleges which did desire to maintain a proper standard. Each of our nearly fifty separate States is autonomous as far as education is concerned, that being one of the matters left to domestic regulation by the general government. There can be no compulsory

harmony of action, for each college is in a measure a law unto itself, within the limits of State regulation. So long as there was no harmonious concert of procedure, the result of a common agreement and understanding between the different schools whose sole source of income was from the students in attendance, the strife for matriculants and patronage almost necessarily led to a depression of the standard, and too often to irregular graduations.

In the absence of a common law regulating the course of study, some general agreement became a necessity for the maintenance of a proper educational status. To accomplish this the National Association of Dental Faculties was formed. At the date of its organization the general tone had been so much depressed that it was impossible to establish such a standard for matriculation and graduation as was desirable, but only such colleges were admitted as had the proper facilities for complete instruction and were conducted by a corps of competent teachers. All other schools were excluded, and their tickets certifying to attendance upon lectures, with their diplomas, were refused recognition by the colleges belonging to the Association. Stringent rules governing attendance, instruction and graduation were adopted, and schools violating them were severely disciplined. The course of study was extended to three full years, and the semesters gradually lengthened until they included from seven to nine months of each year. The curriculum was expanded until it comprised all the branches of study which the growth of modern professional practice has made necessary. As a consequence, it is believed that each and every one of the colleges embraced in the membership of the National Association of Dental Faculties is now giving thorough professional instruction, and is receiving no students who cannot present the evidence of a fair preliminary education. This has been the work of years, for it was impracticable and unwise to make the transition too abrupt. There is much yet to be accomplished, but the Association can point with pride to past achievements, and urge them as a guarantee for its future action.

Two years ago, at the instigation of some of our American graduates abroad, the National Association appointed a standing committee, to be called the Committee of Foreign Relations, whose duty it should be to take into consideration the condition of the American Dental Degree in Europe, and to institute such measures as would prevent the reception of unqualified foreign students by our schools, and to endeavor to give a better understanding of American educational affairs in Europe. It was given authority to appoint European boards for the purpose of furthering the objects committed to its care, and it was also charged with the attempt to suppress fraudulent and unrecognized American colleges, plenary powers to use Association funds, and even to levy assessments, being bestowed upon it. These extraordinary

prerogatives betokened the intense interest which the representatives of the colleges felt in the work. The committee so appointed has labored anxiously and uninterruptedly. It has named the nucleus of a European organization, which it is hoped will be of great benefit to dental educational interests. It has carried on a suit against the most flagrant irregular institution, and has secured a decree condemning it. Before this could be made effective, it became apparent that the repeal of some of the vicious legislation under which incorporation of fraudulent colleges was possible must be secured, and accordingly, in the State of Illinois, bills to accomplish this were introduced, and against strenuous opposition were pushed through the Legislature and have become laws. It is believed that if the committee is sustained by the united voice of the profession its future labors will be more easy, and the entire suppression of all fraudulent schools will be accomplished.

We believe there will be none to dispute the assertion that in the teaching of practical dentistry the dental schools of America have not been excelled by those of any other country. The trouble has been that, for lack of general legislative regulation, the standard of preliminary study has been too low. It is utterly impracticable to raise this to the proper point at one time. Until there shall be a public sentiment created that will sustain effective enactments, it is idle to attempt drastic measures. Such action would only divide the profession and exclude schools which, if the proper time can be given, must of themselves raise their standard to the right level. A regulation that is but a dead letter is far worse than none at all, for it brings law into disrepute. It is utterly hopeless to look for harmony of action through separate State enactments. There must first be an agreement among the representatives of the profession, and then unanimity of action on the part of those of all the States. The attempts at repressive or compulsory action through the different State Legislatures as a primary measure, must inevitably result, as it has already done, in a yet greater diversity of laws, and a more intense antagonism of professional feeling between different sections. It cannot but end in dividing the profession into two adverse and discordant parties, and the perpetuation of the fraudulent colleges, which it will be impossible to suppress, except by unanimity of action. The violent and arbitrary laws already enacted, which encourage and foster bitter animosities, tend to defeat that harmony which alone can bring satisfactory results. If a part of our colleges, existing in the more recently settled and less educationally advanced portions of our common country, are refused recognition and fraternization because they are unable, from lack of time in which to adapt themselves to the changed requirements, to comply with those of a greatly advanced standard, they will thereby be enforced into an unprofessional attitude, and will thus perpetuate the existence of ir-

regular American dental schools, to the continued reproach and disgrace of our professional name. We believe it to be far better to advance gradually, but as fast as existing conditions will permit. Hence we deprecate drastic measures, or arbitrary and despotic action. No man or set of men can, by independent movements, dominate a profession of the dimensions to which dentistry has grown. A proper professional feeling must be a thing for time to bring about. Confidence is said to be a plant of slow growth, and this is eminently true in professional matters.

The wonderful progress made within a few years, under the administration of the National Association of Dental Faculties, leads us to hope that if it is permitted to pursue its own course it will, in a comparatively short time, bring all our colleges up to a point of perfection unattainable by any other means than this mutual agreement and harmony of action. The past is a guarantee for the future, and so long as such rapid progress is being made, it is worse than folly to attempt any violent measures that can be only problematical in their results.

There will be a series of meetings held at Niagara this summer, that can but exercise an overwhelming influence for good or evil on our whole professional future. It is earnestly desired that all who take any interest in our educational affairs will be present at one or more of these meetings. Especially is it important that there be a full consultation between representatives of the colleges and their representative graduates resident in Europe. It is hoped that as many of them as possible will be in attendance, and that so far as is practicable every member of the European Advisory Board will make the pilgrimage to Niagara in July. Nor need the attendance of dentists from abroad be restricted to those thus appointed. The members of the Association will gladly welcome and seek the counsels of any reputable dentist resident in a foreign country.

The meeting of the Foreign Relations Committee will be held at Niagara, commencing on the morning of July 26th. The assembling of the parent body, The National Association of Dental Faculties, will doubtless be called for July 28th, while the National Dental Association, the meeting of the representative men of the profession at large, will convene August 1st. It is desired that foreign representatives in as great numbers as possible will be at Niagara for all these meetings, for while the sessions of the college men have not heretofore been open to strangers, ample opportunity will be given for expression of the views of and consultations with our foreign brethren, and it is within their power to confer lasting benefits upon their profession by making their American confreres fully acquainted with the status of professional affairs abroad.

Respectfully submitted,

W. C. Barrett, S. H. Guilford, J. D. Patterson, T. W. Brophy, H. W. Morgan, Committee on Foreign Relations.

BUFFALO, N. Y., May 20th, 1899.

AN IMPORTANT DECISION.

SUPERIOR COURT: MILWAUKEE COUNTY.

State of Wisconsin, ex rel.,

Peter T. Diamond,

vs.

A. Richter, et al.

Chapter 56 c., of the revised statutes of the State of Wisconsin, provides for the appointment of a State Board of Medical Examiners and prescribes their powers and duties. It is expressly provided in that chapter that "It shall be unlawful for any person who has not on the 30th day of March, 1885, engaged in the practice of dentistry in this State, to commence and practice until he shall have obtained a license, as hereinafter provided. Any person who may desire such a license may appear before the State Board of Dental Examiners at any regular meeting, and be examined with reference to his knowledge and skill in dental surgery; if such an examination shall be satisfactory, the board shall issue a license to practice dentistry: Provided, That the board shall license without examination, upon the payment of one dollar, any regular graduate of an incorporated and reputable dental college which requires that the candidate for graduation shall attend two full courses of lectures of five months each, the last of which shall be attended in the college which issues the diploma."

It appears by the petition herein that the relator applied to the State Board of Dental Examiners for license to practice dentistry in the State of Wisconsin, presenting to the board a diploma from the Chicago College of Dental Surgery, and paying the one dollar fee. His application was refused, and he now brings this mandamus proceeding to compel the board to issue a license to him. The respondents move the court to quash the writ, which proceeding admits all the allegations of the petition, which are properly plead, to be true.

From the petition it appears that the State Board of Dental Examiners has been in the habit of heretofore recognizing the diplomas from the Chicago College of Dental Surgery as satisfactory and sufficient under the provisions of the statute above quoted, but that recently, at the suggestion of the National Association of Dental Examiners—though it is immaterial where the suggestion originated—the State Board has seen fit to provide that they will not hereafter recognize a diploma from the Chicago College of Dental Surgery, or any other dental college, unless such college incorporates in its curriculum certain branches of study not heretofore required in the Chicago College. The board now refuses a license to the relator because his diploma comes from the Chicago College, which declines in the future to

adapt the additional studies required by the State Board. The simple question is thus presented whether the State Board of Dental Examiners has power to say to a dental college, "You must adopt a certain course of study which we consider as essential, or we will not recognize your diploma," and whether if the State Board takes such a position, the court is without power to control the action of the board.

Now, it must be clear that this State Board of Dental Examiners has the power conferred on it by statute, and nothing more or further. When a candidate for licensure presents his diploma, the State Board must first inquire whether that diploma comes from a duly incorporated dental college. In this action that question is answered in the affirmative without dispute. Then the Board must inquire whether such dental college has at least two full courses of lectures of five months each. That question in this action is answered in the affirmative without dispute. Then the board must inquire whether the candidate has attended the last of such courses in the college which has issued the diploma. That question in this action is also answered in the affirmative without dispute. Then the further question is presented whether such dental college is a reputable dental college, and the contention here largely turns upon the scope, force and meaning of the word reputable. The petition in this action is somewhat lengthy in its statement of the history of the Chicago College of Dental Surgery; and this history shows that it is an old and well-established institution, with a large corps of instructors, a large amount of money invested in libraries, appliances and apparatus; many conveniences for students and for lectures and legitimate work connected with the study of dentistry; that it has a course of study extending over more than two years, and has a large number of graduates; and its diplomas have been generally recognized, and that even the diploma of the relator here involved has been accepted by the Illinois Board of Dental Examiners, and the relator licensed under it in that State. In short, the relation shows that the Chicago College of Dental Surgery has every element which ordinarily goes to make up an institution with a good reputation. And there is nothing in this record to indicate or suggest that it is not a reputable institution, whatever meaning may be attached to the word reputable as used in the statute. But the Wisconsin State Board of Dental Examiners assumes the right to say to a graduate of that institution, "You cannot be licensed to practice in Wisconsin unless you get the Chicago College of Dental Surgery to adopt for their course of instruction hereafter certain studies that we want to have incorporated in their curriculum, because if they do not we shall set down their institution as not reputable." This position of the State Board is defective in two vital particulars. In the first place, it assumes that the State Board in and of itself has a right to determine what shall constitute a reputable dental college. And in

the next place it assumes that the State Board has a right to say that certain branches of study are essential to reputability, as practically applied by the Board of Wisconsin. In my judgment, neither of these positions can be successfully maintained by the Board.

The State Board has no more right to determine what shall constitute reputability than they have to say what shall constitute incorporation. It has just as much right to say we will not recognize any dental college as incorporated unless it owned ten acres of land when organized, as it is to say we will not recognize any dental college as reputable unless it requires in its course of study knowledge of Latin and the higher mathematics. The State Board has not an unqualified right to determine what reputability means, so that no one can question such determination. If this were true, then there would be no standard for reputability. It would all lie within a board, constantly changing in membership, and the board one year might determine that one thing was necessary for reputability, and the next year the same board, or a board differently constituted, might determine that another thing was necessary to reputability. Reputability, as used in the statute, must mean the general repute of the institution. Thus, anyone fairly intelligent and reasonably well posted on current events, whether doctor or layman, knows that Rush Medical College in Chicago, and the College of Physicians and Surgeons in New York City, are reputable institutions. They have such a history, such a record in the past, such a faculty, such courses of study, such appurtenances and appliances, and such a list of graduates that anyone is bound to know that they are reputable institutions. And if a State Board having a right to act upon the diplomas of those institutions could assume to say that they were not reputable, it would be such an arbitrary and unjust determination that the courts would interfere. So here, under the showing made in the relation herein, the Chicago College of Dental Surgery has such a history, such a course of instruction, such a corps of instructors, such libraries, appurtenances, appliances and conveniences for dental instruction, and such a list of graduates, that it is unquestionably reputable. And the claim on the part of the respondents that they have a right to say that it is not reputable, is without foundation and cannot be sustained.

Then again, it cannot be possible that the State Board of Dental Examiners has a right to insist that in order to constitute a dental college a reputable school it must teach certain branches. Thus it is not necessary that a dental school, in order to be reputable, must teach Latin and the higher mathematics. A dental school can be reputable in every sense without teaching either of those branches. And whether or not they are taught in the Chicago College does not pertain to the question of reputability, and the State Board of Dental Examiners has no right to insist that the teaching of certain branches of study is essential to make

the school reputable. They might be proper for high scholastic acquirements, but they are by no means necessary to reputability.

The relation of this case shows that among intelligent men, whether members of the dental profession or not, the Chicago College of Dental Surgery must be regarded as a reputable institution; and the present attempt to insist that it is not reputable because it does not teach certain specified branches, would authorize the State Board to say that hereafter they would not recognize any college of dental surgery as reputable unless it adopted a course in the Chinese language, or in the Hindoo tongue. Furthermore, the power of the board to prescribe what scholarship acquirements are necessary for graduates of dental schools is contained in the statute itself; that is, the candidate for licensure must have attended at least two full courses of lectures of five months each in a dental school. It is proper for the board to inquire if this provision has been complied with. But when the board insists upon other scholarship requirements, it is acting wholly outside of its jurisdiction or authority. The statute does not confer such power, and the board, therefore, does not possess it.

So that in the opinion of the court the contention of the State Board must fail, because the board has not the right to fix an arbitrary standard of reputability, and it has no right to insist upon certain additional studies being followed in any dental college, as the basis of establishing reputability, and that the course of the State Board in the premises is arbitrary, unreasonable and unjust, and such as the courts cannot sustain. If this position is correct, then it must follow that this proceeding is well taken, and that the board is not beyond the reach of the court under the circumstances. The Legislature of the State of Wisconsin is from time to time establishing various boards with varied powers; and it cannot be that each board thus created is supreme, each in its own domain, and above the salutary control of the courts.

In this connection the case of the State, *ex rel.*, *Bowe vs. the Board of Education of Fond du Lac*, 63 Wis., 234, is instructive. That was a contest between a pupil in one of the public schools of Fond du Lac and the City Board of Education. There was a regulation in the schools known and approved by the board, requiring each pupil to bring into the school room certain wood under certain circumstances. The pupil refused to bring in the wood. He was suspended, and the board declined to reinstate him in the school. The father of the pupil brought mandamus proceedings, and the Supreme Court sustained them. In that case the board took the position that it has absolute control of the schools, and could make all regulations for the government of the schools and the pupils therein, and that they had a right to expel the pupil because he would not comply with the regulations adopted by the board. The court, in its decision, on page 237,

said: "School boards and boards of education have important duties to discharge. And we have no disposition, as our decisions show, to circumscribe their powers in too narrow a compass. The State clothes them with power to make all needful rules for the government of the schools established within their respective jurisdiction and to suspend any pupil from the privilege of the school for non-compliance with the rules established by them, or by the teacher with their consent. While from the necessity of the case, such discretion must be left to these boards as to the nature of the rules which are prescribed, yet it cannot fairly be claimed that the boards are uncontrolled in the exercise of their discretion and judgment upon the subject. The rules and regulations made must be reasonable and proper, or in the language of the statute, 'Needful' for the government, good order and efficiency of the schools; such as will best advance the pupils in their studies, tend to their education and mental improvement, and promote their interest and welfare. But the rules and regulations must relate to those subjects. The boards are not at liberty to adopt rules relating to other subjects, according to their humor or fancy, and make disobedience to such a rule by a pupil cause for his expulsion. We, therefore, think the rule or regulation requiring the pupil to bring up wood for use in the school-room was one which the board had no right to make and enforce."

So it seems to me clear in this action that the State Board of Dental Examiners, in fixing an arbitrary standard of reputability, and prescribing the pursuit of certain studies as requisite to make reputability, is acting "according to their humor or fancy." And that under the circumstances the refusal of the board to license the relator to practice dentistry in the State of Wisconsin is wholly unjustifiable.

See State, ex rel., Adams *vs.* Burdge, 95 Wis., 390.

Also Illinois Board of Dental Examiners *vs.* Cooper, 123 Ill., 227.

State, ex rel., Hathaway *vs.* Board of Health, 103 Mo., 22.

State, ex rel., Johnson *vs.* Lutz, 136 Mo., 633.

Therefore, without difficulty, the court reaches the conclusion that the motion to quash the mandamus proceedings must be denied, but with leave to the respondent to make return to the writ upon payment of ten dollars and costs. And it is so ordered.

REPORT OF THE DENTAL ASSOCIATION OF THE PROVINCE OF QUEBEC.

The recent amendments to the act of incorporation comprise several important changes. No member of the faculty of the college, and no member of the Association engaged in trade for commercial pursuits, is now eligible for election to the board. Six members are to be elected by the Association, in addition to

the representatives of the college and the affiliated university, making eight members of the board in all. The six elected members are to serve for three years, two of their number retiring every year, who shall be eligible for reëlection. No licentiate can have more than two students under indentures at one time.

The most important ethical amendment is that relating to advertising. It is certainly refreshing to find a legislature disposed to put a stop to the lying advertisers who for years have been deceiving the public, and if the following by-law, which has been passed by the board in conformity with paragraph 9, Article 4055, can be fully enforced, honest men in the profession will have much encouragement. An immediate effect was observable in the withdrawal from the press of the disgraceful advertisements. We congratulate, too, some of the signers of the petition on their personal reformation.

BOARD OF EXAMINERS, DENTAL ASSOCIATION OF THE PROVINCE
OF QUEBEC.

Dear Confrère:—I am authorized by the Board of Examiners of the Dental Association of the Province of Quebec to send you a copy of a by-law, passed at a regular meeting held on the 13th instant, and which reads as follows:

"No dentist practicing in the Province of Quebec shall be allowed:

"(a) To publish any advertisement in any newspaper, magazine or other publication, other than a professional card setting forth his name, address and profession only, which card shall not exceed in length twenty lines of a single column in said newspaper, magazine or publication;

"(b) To advertise through any business firm, or to allow such firm to so advertise him;

"(c) To advertise under any name other than his own or under a corporate name or any firm name, whether by signs, or notices in the newspapers, magazines, or in any other medium;

"(d) To post up any placards setting forth his name, address or profession in stores, street cars or elsewhere, and to distribute pamphlets or circulars or other article containing any advertisement.

"(e) Any dentist who shall directly or indirectly violate the above by-law shall be liable, for the first offence, to be suspended for one month; for the second offence, to be suspended for six

months; for third offence, to be suspended for one year. A fourth offence shall entail the loss of the offender's license, if the board so decides."

This by-law has been passed in conformity with paragraph 9, Article 4055, R. S. P. Q., as amended by bill No. 86 of the Legislative Assembly, and assented to by His Honor the Lieutenant-Governor of the Province of Quebec on the 10th of March instant. The dentist who are actually in contravention with the above by-law will therefore act accordingly without any further delay, in order to avoid the penalties above mentioned.

I am also authorized to draw your attention to the fact that this new by-law, which has been advocated for many years by the members of our Association, will be strictly enforced, and the Board of Examiners relies upon your good will to help them in putting to an end the many abuses which have so long existed.

I remain, dear sir, your truly,

Eudore Dubeau, L.D.S., D.D.S., Sec. D. A. P. Q.,

Dominion Dental Journal.

MONTREAL, March 20th, 1899.

ANNOUNCEMENTS.

ANNUAL MEETING OF THE NATIONAL DENTAL ASSOCIATION.

The annual meeting of the National Dental Association will be held in the ball room of the International Hotel, at Niagara Falls, August 1st, 2d, 3d and 4th, 1899.

A railroad rate of one and one-third fare on the certificate plan will be obtained. Also reduced rates on C. and B. and Northern Transportation S. S. lines. It is suggested that members living at a considerable distance organize parties, and thereby be enabled to secure lower rates from railroad companies.

Following is a list of hotels:

Cataract House, \$3.00 to \$4.00 per day; International Hotel, \$3.00 to \$4.00 per day; Kaltenback Hotel, \$3.00 per day; Imperial Hotel, \$2.50 to \$4.00 per day; Columbia Hotel, \$1.50 to \$2.00 per day; Temperance House, \$1.50 to \$2.00 per day; Niagara Falls House, \$2.00 per day; Niagara House, \$2.00 per day.

Dr. M. O. Cooley, of Niagara Falls, N. Y., will engage rooms and answer any questions regarding local arrangements

for the meeting. Definite meeting places for sections will be announced later.

It is the wish of the officers of the Association that members make special efforts to be present at section meetings, on account of the unusual number of valuable papers which must first be passed upon by the section to which they properly belong.

The following is the preliminary program:

"Porcelain Enamel Inlays," Dr. N. S. Jenkins, Dresden; "Orthodontia" (illustrated), Dr. Edward H. Angle, St. Louis; "The Absolute Efficiency of the Controllers of the Market for Dental Cataphoresis," Dr. W. A. Price, Cleveland; "Dental Electricity," Dr. L. E. Custer, Dayton; "The Practical Side of it," Dr. S. S. Stowell, Pittsfield; "A Bastard Profession," Dr. E. P. Beadles, Danville; "Surgical Operations in Early Infancy for Palatal Defects," Dr. Truman W. Brophy, Chicago; "Cements," Dr. E. K. Wedelstaedt, Minneapolis; "The Reflexes of the Three Lower Molars," Dr. Jas. Truman, Philadelphia; "Operative Dentistry," Dr. J. N. Crouse, Chicago; "Gomphosis," Dr. B. H. Catching, Atlanta; "Prognathism—Extraction and Delay versus Expansion and Early Attention" (illustrated), Dr. R. Ottolengui, New York; "Some Phases of the Cement Question," Dr. W. V. B. Ames, Chicago; "A Study of Hare-Lip and Cleft Palate" (illustrated), Dr. Thomas Fillebrown, Boston; "Dies and Counter-Dies," Dr. Robert H. Nones, Philadelphia; "Phyorrhoea Alveolaris," Dr. M. L. Rhein, New York; "Constitutional Deterioration the Cause of Dental Caries," Dr. Harvey, Battle Creek; "Oral Affections in Secondary Syphilis," Dr. W. C. Barrett, Buffalo; "The Physiological Relation of the Adult Tooth-Pulp to the Economy," Dr. C. L. Hungerford, Kansas City; "Etiology of Gnathic Abnormalities," Dr. A. H. Thompson, Topeka; "The Dental Profession in Charity; an Experiment in Chicago," Dr. Carl Theodore Gramm, Chicago; "Some New Points in the Anatomy of the Face and Jaws," Dr. H. M. Cryer, Philadelphia; an important paper by Dr. J. Leon Williams, of London. Subjects to be announced: Dr. George W. Beers, Montreal; Dr. H. L. Ambler, Cleveland; Dr. Joseph Head, Philadelphia; Dr. John S. Marshall, Chicago; Dr. A. H. Peck, Chicago; Dr. R. H. Hofheintz, Rochester; Dr. G. V. I. Brown, Milwaukee; Dr. H. H. Johnson, Macon; Dr. C. Edmund Kells, New Orleans; Dr. L. M. Cowardin, Richmond; Dr. L. L. Dunbar, San Francisco; Dr. G. V. Black, Chicago; Dr. W. H. Whistler, Cleveland; Dr. A. W.

Harlan, Chicago; Dr. C. N. Johnson, Chicago; Dr. H. J. Goslee, Chicago; Dr. F. W. Lowe, Buffalo; Dr. T. P. Hinman, Atlanta; Dr. B. Holly Smith, Baltimore; Dr. M. C. Smith, Lynn; Dr. Edward C. Kirk, Philadelphia; Dr. W. Ernest Walker, Pass Christian.

The revised program, with reports of chairmen of sections, will be issued later. Prominent members of the profession from abroad have been invited to be present.

The names of the gentlemen who have promised to present papers is a sufficient guarantee of the high character of the work which will be done at this meeting. The minor details will be carefully looked after, and all unnecessary and irrelevant matter eliminated, so that the business of the Association may be transacted in a prompt and expeditious manner. It is hoped that the various State Societies will send full delegations, and that all members of the Association, and reputable dentists in this country and Canada who are not members, will show their interest in and loyalty to the National Association by attending this meeting.

H. J. Burkhart, President.

Emma Eames Chase, Corresponding Secretary,

J. N. Crouse, Chairman Executive Committee.

NATIONAL DENTAL ASSOCIATION.

Railroad arrangements for the meeting of the National Dental Association have not yet been completed. A rate of one and a third fare, on the certificate plan, has been granted by some of the railroad associations—have not had replies from all of them, but expect to have within a week, and think all will grant this concession.

Wednesday, August 2d, has been arranged as the day in which the special agent of the railroad associations will be at the meeting to qualify certificates. All attending should be sure to get certificate from ticket agent when purchasing ticket going, showing that full fare has been paid, otherwise they will not be entitled to the reduction in fare on return ticket. Tickets for reduced fare will be good going July 24th to 27th, inclusive, and returning not later than August 9th.

Reports from secretaries of the sections have not been received sufficiently definite to enable us to issue at this time a complete literary program.

J. N. Crouse, Chairman Executive Committee.

NEW JERSEY STATE DENTAL SOCIETY.

The twenty-ninth annual session will convene at the Auditorium, Asbury Park at 10 A. M., Wednesday, July 19th, and continue the 20th and 21st. The hotel headquarters will be at the Hotel Columbia. The rates will be \$2.50 per day, two in a room; \$3.00 per day, one in a room.

The demonstration of porcelain inlay-work will receive more than usual attention. Dr. Jenkins, of Dresden, will give a clinic with the Jenkins furnace and read a paper on the subject. Dr. Joseph Head, of Philadelphia, will also clinic with the electric furnace and read a paper. Dr. W. A. Capon, of Philadelphia, will also demonstrate his method of inlay-work and read a paper.

The exhibition of electrical appliances for the dentist will be of more than usual interest and of greater variety than usually seen at dental meetings. The clinics generally will be practical and of useful interest to the every-day working dentist.

Secure your rooms by July 1st, and come and see our methods.

Charles A. Meeker, D.D.S., Secretary

PENNSYLVANIA STATE DENTAL SOCIETY.

The thirty-first annual meeting of the Pennsylvania State Dental Society will be held at the Neversink Mountain Hotel, Reading, Pa., July 11th, 12th, 13th, 1899. An unusually attractive program has been prepared and will soon be ready for distribution. All members of the profession are cordially invited to attend.

Those desiring to read papers or give clinics will please notify the chairman of the Executive Committee as soon as possible.

This meeting will be one of importance to every practitioner in Pennsylvania, and all who can be present and take part in the transaction of business should not fail to do so.

Edward C. Kirk, Chairman Executive Committee.

TENNESSEE DENTAL ASSOCIATION.

The thirty-second annual meeting of the Tennessee Dental Association will be held on Lookout Mountain, Chattanooga, July 4th-6th, next. An interesting program has been arranged, and a cordial invitation is extended to all members of the profession to be present.

N. C. Leonard, President.

A. Sidney Page, Secretary.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The next annual session will be held at Niagara Falls, N. Y., at the International Hotel, commencing at 10 A. M., Friday, July 28th, and continuing Saturday, 29th, and Monday, 31st, adjourning in time for the opening of the National Association on Tuesday. It is hoped that delegates from every State will be present. As this session is some days ahead of the National, please write and secure your rooms as members of the National Association of Dental Examiners. The rates will be \$3.00, \$3.50 and \$4.00 per day, according to the location of the rooms.

Chas. A. Mecker, D.D.S., Sec., 29 Fulton St., Newark, N. J.

COLLEGE COMMENCEMENTS.

UNIVERSITY OF BUFFALO—DEPARTMENT OF DENTISTRY.

The seventh annual commencement was held April 25th, 1899. Following is a list of the graduates: Frank Anderson, George Morris Austin, William George Beaumont, Charles Alonzo Bennett, Frank Joseph Biker, Michael Courtney Bradley, William John Burke, Duncan Alexander Cant, Frederic William Champlin, Charles Hoyt Churchill, Arthur Burdette Cobb, Frank Winthrop Cook, Frederic Seaman Cox, Leon Van Cursons*, Guy Rufus Danforth, George Edward Dougall, John Elmor Dunn, Harry Gardiner Fairfield, Robert Joseph Fletcher, Charles Joseph Fraley, Charles Elisha Gillam, Gladstone Goode, Betrand Oscar Harmon, Charles Henry Hickelton, Abram Hoffman, George Lee Horton, Arthur Fuller Isham, William Dawson Jacob Alfred Osman Jerrett, Arthur John Jessel, Clement Dale Kennedy, Burt Kinsella, Francis Montgomery Lee, William Nicklis Leonard, Harry Heathcote Lutton, Harry Koch Mason, Russel George William Merkle, Stanley Albert Merkle, John Middaugh, George Franklin Mouthrop, Mansfield Earnest Moony, Arthur Brice Muir, Emanuel Muntz, Daniel McPherson Murray, Thomas Francis O'Shea, George O'Leary, Frederick William Orwan, Herman Eugene Reynolds, Clare Eugene Robinson, William James Roche, Robert Sabin, Robert Roy Schmidt, Grace Newton Shirley, B. L., Howard Arthur Smith, Louis Weston Smith, Alonzo Whitcomb Tracy, James Forbes Wardner and William Howard Willson.

* Diploma held on account of being under age.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA—DEPARTMENT OF DENTISTRY.

The Medico-Chirurgical College of Philadelphia held its annual commencement May 20th, 1899, in the Academy of Music. Prof. William L. Rodman, A.M., M.D., conferred the degrees on 21 dental, 144 medical and 5 pharmacy graduates. The Doctorate Oration was delivered by Prof. Joseph M. Matthews, M.D., LL.D., President of the American Medical Association. The graduates in dentistry were: Charles Robert Bain, Canada; Charles Jacob Bingle, Germany; Delos VanCola Burges, Pennsylvania; James Middleton Cornyn, Pennsylvania; Emerson Albert Dunbar, Louisiana; Charles Milton Frantz, V.M.D., Pennsylvania; Condy C. Gallagher, Pennsylvania, August Philip Graf, Indiana; Harry C. Hadley, Ph.G., Pennsylvania; John Lincoln Hughes, Pennsylvania; Edgar Coleman Hoskin, Canada; George Gould Lawyer, New York; Gabriel Middleton, Pennsylvania; Michael Coleman Ryan, M.D., Pennsylvania; George Oliver Reed, Ph.G., Pennsylvania; Henry Louis Samelson, Tennessee; John Jacob Stettzer, Pennsylvania; Telesphore Gustave Turcot, Canada; A. F. Wehr, Pennsylvania; Samuel Reynolds Wharton, Indiana; Charles L. Zimmerman, Pennsylvania.

UNIVERSITY OF CALIFORNIA COLLEGE OF DENTISTRY.

The graduating class of 1899 was as follows: William Robertson Allin, Ricardo Arroyo, William Robert Bacon, Arthur Woodley Baker, Joseph Barnett, Robert Johnson Blake, May Blossom, Walter Joseph Burrige, Monroe N. Callender, John Albert Colegrove, Anna Bella Paterson Croall, Palmer Howard Dunbar, Norman Stanley Fairweather, Cecil Albert Fugler, Lee Robert Gambitz, George Weston Gove, Frederick Thomas Grant, Francis Joseph Gruss, Benagah Ralph Hamlin, Leonore Freida Hermann, Thomas Rodney Jones, Charles Frederick Kuster, William Joseph Lawson, George Willis Likens, William Horace Mayhew, James Benjamin Franklin Millar, Edward Martin Mulrenin, Louis Herbert Parks, Andrew Darwin Patterson, Stephen Livingston Piper, Charles Louis Reich, Wallace Hiram Wenrick, Joseph Patrick River, Maurice Schiller, Thomas Ustick Smyth, Stephen Scott Southworth, Abraham Sinclair Sullivan, Alonzo Walter Tate, Howard Alan Tennyson, Rosa Edith

Turner, Arthur Henry Wanz, William Louis Warnekros, Arthur Loring White, Edward Otis Whitney and John Jarvis Williams.

THE COLUMBIA UNIVERSITY, WASHINGTON, D. C.—
DENTAL DEPARTMENT, CLASS OF 1899.

The doctors of dental surgery are: Arthur Reginald Bennett, Enrique Cuevas, William Cummings Fisher, Thomas J. Gates, Walter Brice Hoofnagle, William Marshall Kemball, John R. McChesney, Stephen D. Pool, William Edwin Pairo, Thomas M. Rice, William A. Rawson, Harry Summers Terry and William G. Woodford.

RECENT PATENTS RELATING TO DENTISTRY.

625043, Dental plugger, Theodore G. Lewis, assignor to Buffalo Dental Manufacturing Company, N. Y.

625319, Disinfecting composition and making same, Joachim von Brenner, Vienna, Austria-Hungary.

625434, Syringe nozzle, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.

625401, Dental tool, Alvan P. Lanterman, Chicago, Ill.

625354, Dental spatula, Alanson H. Putnam, Toronto, Canada.

625425, Dental chair, Richard W. Sonnex, Barnet, assignor to Dental Manufacturing Company, Limited, London, England.

626066, Attachment for dental spittoons, Frank Hurlburt, assignor to A. C. Clark, Chicago, Ill.

625888, Dental matrix clamp, Laurence P. Leonard, Waseca, Minn.

30883, Design, rubber-dam clamp, Edward N. La Veine, Kansas City, Mo.

626476, Tooth regulating device, Edward H. Angle, St. Louis, Mo.

626287, Artificial tooth and plate, George H. Modermann, New York, N. Y.

TRADE-MARKS.

32893, Antiseptics, Ch. Prevet & Cie, Paris, France.

32894, Antiseptics, Ch. Prevet & Cie, Paris, France.

33000, Disinfectants and deodorizers, Carloline E. Blake, Minneapolis, Minn.

Questions and Answers.*

Question 43. *I would like your counsel in a case presented to me yesterday. A lady, thirty years of age, has two hard bony growths on the lower maxillary, lingual surface, nearly over the cuspids, both of which are alive, and there are no fillings. Patient had not noticed these growths before. They seemed to have grown rapidly. No pain except on pressure. When I lanced them I found they were covered by only a thin membrane. The patient was sent to me by a physician, who thought these growths were new teeth erupting. The lady has all of her teeth. I saw a similar case some years ago with much larger growths, but have lost sight of that case. These look as if some substance, about the size of a green pea, had been inserted beneath the membrane. Any information you may give me regarding these growths and treatment will be greatly appreciated?*

From history of case I am inclined to associate it with not a few similar cases which I have seen and which I have always considered to be a normal condition for the individual case. We find in a small percentage of cases a pair of bony tubercles, developed on the lingual surfaces of the lower maxillary bone about opposite the cuspid teeth and on a line with the mylo-hyoid ridge. I do not consider such as an exostosis but a normal development, and would regard operative interference as justifiable only in case of such a development as to cause interference with the free motion of the tongue.

W. J. Roe, M.D., D.D.S., Philadelphia, Pa.

Question 44 *Removed bridge, for gentleman fifty years of age, extending from second bicuspid to third molar. The molar crown had been worn through for sometime. Found no enamel on occlusal surface of molar, and the dentine could be removed to a considerable depth with an excavator, without pain. The tooth ached. What is the best treatment in such cases?*

Devitalize the tooth.

Dr. G. R. Beecher.

In such case should not hesitate to open into the pulp chamber and treat tooth according to the condition of the pulp.

Dr. E. C. Eglin.

*Address all questions for this Department to its editor, Dr. Henry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.

If there be sufficient room for non-conductors without interfering with the security of the bridge, "cavitine" varnish is suggested, provided the irritation of the pulp is not due to exposure nor intractable. In the latter case devitalization is necessary. The bridge should be repaired before replacement.

Dr. Otto E. Inglis.

Question 45. *At what age should regulating be undertaken with a child?*

When there are sufficient teeth present to afford proper anchorage for the necessary regulation appliances.

Dr. E. C. Eglin.

At any age when permanence of correction is likely, as for example in case of interlocked upper central incisors or in lower protrusion. A case involving many teeth is usually deferred till about the thirteenth or fourteenth year of age.

Dr. Otto E. Inglis.

As early as possible. Generally about the fourteenth year, as the teeth are not usually fully erupted till then.

Dr. G. R. Beecher.

Question 46. *What is the cause of thick or stringy saliva and is there any remedy?*

Stringy saliva is usually associated with lactic fermentation and caries in the mouths of the careless. Carefully made and finished fillings coupled with oral hygiene should alter its character.

Dr. Inglis.

Question 47. *Is Mrs. J. M. Walker, of Bay St. Louis, Mississippi, a dentist?*

No; but a very able reporter of dental proceedings.

Question 48. *How should the pin of a Davis crown be securely fastened in the crown?*

It may be securely fastened either with oxyphosphate cement or by filling the pin socket in the crown with powdered sulphur and inserting the heated pin, then set in the root in the usual manner.

Harry B. Hickman.

Practical Points.*

Impression of Root End.—Place a projecting wooden peg in the canal and pack gutta-percha around it, forcing the gum out of the way. The pin will come away with the impression.

American Dentist.

Filling the Deciduous Teeth.—For the anterior deciduous set, oxyphosphate of zinc is preëminently the best material, as it can be inserted with a minimum amount of excavating, thereby favoring the little ones all that is possible during their tenderest years.

S. S. Stowell, Dental Cosmos.

Formalin Cement.—Mix equal parts of formalin and the phosphoric acid with which the zinc oxid is incorporated. Dawson's cement is preferable, as it is non-sticky. For filling pulp chambers after pulp amputation.

Dr. Billet, Trans., H. Printz, Ohio Dental Journal.

Removal of Gum Tissue Over Third Molar.—I use a rotary trephine knife in the engine, and it works well. The beauty of it is you not only cut, but you take your chips with you. I use a local application of guaiacal on the surface first.

Dr. Price, Ohio Dental Journal.

A Counter-irritant.—I instruct my patients to mix a little ginger, red pepper and mustard, and sprinkle a little on the fleshy part of a raisin, and then roast the raisin. This is an easy method of making a capital capsicum plaster in case of emergency. It acts like a charm generally, and is more effective than the roasted raisin by itself.

Dr. Roberts, International Dental Journal.

Root-canal Filling.—Apply the coffer-dam; by the aid of the root-drier dry the canal, destroying any microorganisms that may have been left there. Flood the canal with eucalyptus, which, by imbibition, is carried into the dental tubules, any surplus being removed by the aid of cotton or other absorbent. Flood with chloroform, and work a broach back and forth in the canals as air bubbles escape. Work chloro-percha into the canal, withdrawing the broach gradually, leaving gutta-percha in its place.

J. H. Wooley, Dental Review.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

For Relief of Reflex Pains from Diseases of the Pulp.—Prescription "recommended by a physician in one of the medical journals:"

R. Acetanilidi grs. viii.
 Phenacetin grs. xv.
 Caffeine citrate..... grs. xv.
 Misce et ft. pulv. No. viii.

Sig.—One to be taken every two hours.

The combined coal tar products act in perfect harmony, while the toxic properties are more or less neutralized, while smaller doses are more powerful in the combination.

Leo Greenbaum, International Dental Journal.

Treatment of the Permanent Teeth in Young Children.—When the pulp is nearly or partially exposed carefully excavate all non-sensitive (or literally dead) tissue, and bathe the cavity with 5 per cent. alcoholic solution of hydronaphthol. The alcohol penetrates all soft, moist tissue, carrying with it the healing antiseptic hydronaphthol, which is left in the tissues as the alcohol is drawn off by evaporation. Dry the cavity, and fill with Stowell's hydronaphthol cement, and the sensitive dentin will be recalcified, and the most threatened pulp saved alive, the value of which, in a young subject, cannot be too highly estimated.

S. S. Stowell, Dental Cosmos.

Replacing Porcelain Facings.—For replacing a broken porcelain facing the pins are frequently not long enough. They may be elongated by placing tubes of planous gold (platinum lined with gold) over the pins; invest and put under the blow-pipe after heating gradually; pure gold on the inside will unite with the platinum pins. Drill holes through the bridge to accommodate the tube-pins, and countersink. Pass the tubes through and grind off even with the surface. The ends of the tubes may be dilated to fill the countersink, and the space filled with gold foil.

G. W. Melotte, Dominion Dental Journal.

For Relief of Reflex Pains in the Face from Disease of the Pulp.—

R. Antipyrin,
 Phenacetin,
 Quinin sulphate,
 Powdered ginger.....aa 3ss.
 Caffeine citrate..... grs. xv.

Misce et ft. pulv. No. iii.

Sig.—One every two hours.

Leo Greenbaum, International Dental Journal.

After-pains of Extraction.—If a 5-grain tablet of antikamnia be crushed to a powder and—on a moistened pledget of cotton—placed into the socket of the tooth giving pain, the pain will be promptly relieved.

T. F. Chupein, Dental Office and Laboratory.

Seven Considerations in the Treatment of the Anterior Permanent Teeth of Children.—What to do depends:

1. On the disposition of the child.
2. On the age.
3. On the health.
4. On the sex.
5. Where the cavity is situated.
6. On the size of the cavity.
7. On the character of the decay.

Each case should be carefully studied and the seven considerations above named be applied to the case in hand.

E. K. Wedelstaedt, Dental Cosmos.

Pyorrhea Alveolaris.—After thorough removal of all deposits and curettement of the pocket, removing all necrotic bone and granulation tissue, syringe repeatedly with hot water and apply lactic acid in a thorough manner. This has a pronounced effect in promoting a healing of the affected parts. The lactic acid not only induces healthy granulation tissue to spring up, but insures a union between the tissues and the root; that is, by partly decalcifying the outer layers of the root it opens up the mouths of the canaliculi and stimulates the adjacent tissue to healthy action. Prescribe an antiseptic mouthwash, to be held in the mouth not less than three or four minutes, and frequently repeated.

O. N. Heise, Dental Register.

Ames' Oxyphosphate of Copper Cement.—For children especially I find that I can barely cut out the grooves and fissures and have no deepening for retention in any way, and that the oxyphosphate of copper cement will hold. Some that I put in four years ago I had occasion to refill within the last two months, and I found that underneath these fillings the dentin was hard and polished, and the teeth in better condition than I had any hopes of being the case. What little decay or softening there might have been had become very hard and very dense, and I refilled with very little additional cutting.

W. T. Reeves, Dental Review.

Paraform Cement Filling.—The addition of a small proportion of paraform to cement, in addition to its germicidal qualities, gives added strength, as it is comparatively insoluble in water; it also makes the cement more sticky.

A. A. Fowler, Pacific Med. D. Gazette.

A Substitute for Iodoform.—Where iodoform is used to any great extent, and the odor is objectionable, an excellent substitute will be found in carvacrol iodid, the germ-destroying qualities of which will be found far superior to those of iodoform.

Report of Committee on Materia Med.

New Jersey S. D. Soc., Items of Interest.

Combination Filling Gold and Tin Foil.—That the tin may be equally distributed throughout the gold, and in the proportion of about one to six, I fold a sheet of soft gold over twice, giving four layers, then place on the folded gold a strip of tin foil of the same length as the gold, but somewhat narrower. Fold the gold over the tin a sufficient number of times to make the strip the required width. By this combination we get greater softness, toughness, more certainty in the welding, greater solidity, and stronger margins. Such fillings will wear longer and preserve the teeth from further decay with more certainty than all gold.

Benjamin Lord, International Dental Journal.

Sterilization of Decomposed Dentin.—There is no doubt in my mind that I have succeeded in thoroughly sterilizing these soft layers. They must never be near the margin of the cavity. The only place where I would tolerate them is in the bottom of the cavity, as an alternative to pulp exposure. My method is, first, a thorough dehydration with bibulous paper, chloroform and warm air; second, bicarbonate of soda to remove the acidity usually existing in decayed dentin; third, dehydrating again; fourth, use of antiseptic—concentrated carbolic acid, trichloroacetic acid, 10 per cent. solution of formaldehyde. Keep layer of decomposed dentin thoroughly saturated; then fill temporarily with an oxysulphate filling. Repeat the antiseptic treatment after 24 to 48 hours; then fill by putting a layer of medicated cement—my preference recently having been for thymol—on top of the decomposed, sterilized layer; gutta-percha as an interposing material; then oxyphosphate, and complete with metallic filling.

R. H. Hofheinz, Dental Cosmos.

Miscellany.

To Stop Nose-bleed.—Grasp the nose between the thumb and forefinger and press backward against the alveolar border of the maxilla and downward against the teeth. This compresses the *lateralis nasi* and septal arteries. Satisfactory results also follow the use of tannin and acetanilid.—*The Laryngoscope*.

Paraguay Tea.—Sharp from a study of mate or Paraguay tea finds it very destructive to the function of the gastrointestinal tract, causing nausea, loss of appetite, vomiting, a dull, drowsy headache, some relaxation of the bowels, and a sensation of heaviness in the legs. An hour after a full dose of the ethereal extract of mate there occurred nausea, moderate relaxation, and great discomfort in the region of the transverse colon, followed by a sleepless night and a headache the following morning. There was slight diuretic action. A study of mate remaining after exhaustion with absolute ether showed the presence of caffeine and tannin as its chief constituents.—*Lancet*.

A Doctor's Strange Fees.—A correspondent has sent us an extract from a letter received from his brother, a medical missionary in Sechuan, one of the inland provinces of China. "I had," he writes, "a very distinguished patient this afternoon. She is the wife of Sai-Tai of Tien-Tsin, in Chih-Li Province, a man who governs an area probably equal to half a dozen English counties. She brought her fee with her; a fowl, a duck, sixty eggs, two pounds of cakes and a leg of mutton! Last time she came she brought not quite so much, but since then she has sent over eight stocks of beautiful chrysanthemums."—*British Medical Journal*.

Germany's inebriates, after one more year of such carefully mitigated liberty as the Kaiser's subjects are permitted to enjoy, will enter upon a period of restraint calculated to fill them with mingled horror and indignation. With the beginning of 1900 there will go into effect a truly remarkable law—a law which places every habitual drunkard under an interdict involving complete submission to the will of a duly appointed "curator." This person will be empowered to put the individual, whom he regards as a dipsomaniac, anywhere he pleases, there to undergo treatment for the malady as long as the "curator" wishes. And the law formulates a fine, broad distinction in telling what a habitual drunkard is. It says the term includes everybody who in consequence of inebriety cannot provide for his affairs or endangers the safety of others. This measure was first advocated in Germany thirty-five years ago, but hitherto its enactment has been prevented by influences not difficult to understand. How the regulation will work remains to be seen.—*Sanitarian*.

Less and More.—"Drink less, breathe more;" eat less, chew more; ride less, walk more; clothe less, bathe more; worry less, work more; waste less, give more; write less, read more; preach less, practice more.

Nerve Suturing.—D. McCartney (*Glasgow Medical Journal*, May, 1899) cites the case of a man, aged 56, who had received a cut 9 years previously in the anterior aspect of his left wrist. The wound healed with the loss of sensation in the palmar surfaces of the $3\frac{1}{2}$ outer fingers of that hand. An operation was undertaken, dissecting out the proximal bulbous end of the nerve and the atrophied distal end. The ends were cut off and sutured with fine chromicized gut. The patient was discharged from the hospital a week later, and several weeks after there was marked improvement in the acuteness and localization of his sensations.

A Wire Through the Stomach.—A physician, while making an application to his throat with a brass wire wrapped with cotton, allowed it to slip down the esophagus beyond his reach. He experienced no discomfort for three months; then he began to have distress in the epigastrium, followed by sharp pain in the region of the cardiac end of the stomach. The next day the wire was found protruding under the skin in the ninth intercostal space. An incision was made, under cocain anæsthesia, and the wire was removed. The patient suffered but slight annoyance from the operation.—*New York Med. Jour.*

Cocainization of Spinal Cord. A New Method of Anaesthesia.—A. Bier. The theoretic assumption that cocain introduced directly into the spinal cord would temporarily suppress the functions of the ganglion cells of the nerve roots and sheathless nerves has been fully confirmed by the results in various experiences. One-half to 3 cc. of a .5 to 1 per cent. solution of cocain were introduced into the spinal cord through a lumbar puncture. In five to eight minutes the analgesia of the lower members was complete, extending then to the nipple line or including the entire body except the head, and continuing for about forty-five minutes, when it gradually passed away. Besides experiments on himself and his assistant, six patients were thus anæsthetized and extensive osteotuberculous or myelitic foci evacuated and bones resected without the slightest pain, although tactile and thermic sensation was retained. There were no immediate disturbances in any case, but in three there was vomiting and an intense cephalalgia later, probably due to the presence of a heterogeneous fluid in the circulation. During the experiments on himself, Professor Bier lost quite a large amount of the cerebro-spinal fluid, requiring nine days in bed before he could stand without vertigo. The original communication is in the *Deutsch. Zftt. f. Chir.*, li. 3, 4.

Editorial Responsibility.—The Governor of California has signed a bill requiring that the name of the writer shall be attached to all publications in which individuals are mentioned by name.

Root-canal Filling.—Salol 1 part, paraffin 2 parts, and 2 per cent. Formalin. Canada Balsam may be advantageously substituted for the paraffin.

A. A. Fowler, Pacific Med. D. Gazette.

Cement for Broken Casts.—Dissolve sheet celluloid in ether, making a thick, creamy paste. Coat the broken surfaces thickly and hold together for a few moments; allow to harden not less than three minutes before handling.

Dental Weekly.

The Fountain of the Thymus.—Dr. J. Bean (*London Lancet*) claims to have demonstrated that the first leucocytes arise in the thymus from its epithelial cells, and that there it is the parent source of the leucocytes of the body.

A Systemic Hemostatic.—The hemostatic action of hyposulphate of lime is announced by Silvestré, who has arrested with it hemorrhages of all kinds. He administers an average of 8 grams a day, divided into six powders. He attributes its action to increased coagulability of the blood.

Semaine Medical.

Cavity Preparation for Porcelain Inlays.—A properly prepared cavity should have a perfectly even floor and walls finishing in a well-defined, sharp outline. If from extensive caries, the cavity presented any undercuts they should be filled with bits of red gutta-percha, and in very deep cavities it may be well to line the whole inside with cement or gutta-percha to prevent teasing the foil. If the margin of the cavity is below the edge of the gum, so as not to afford free exposure of the cervical border, it may be necessary to construct an artificial border by packing amalgam in these "underground" parts, trimming it off to a round edge, following the gum line.

Wm. Hirschfield, Dental Cosmos.

An Egyptian Journal of Hygiene.—The *British Medical Journal* states that it may not be generally known that Egypt is fortunate in the possession of a monthly journal of its own devoted to hygiene. It is entitled *Tahib el Aila*, and is written in Arabic in a style likely to be understood by the people. It is intended to diffuse a knowledge of the principles of sanitary science among the native population, and especially among the poorer classes. The teaching which it contains is in conformity with the hygienic precepts of the Koran. *Tahib el Aila* is edited by Dr. Eid, of Cairo, who is also the proprietor. It has been in existence for three years, and has subscribers in all Arabic-speaking countries, such as Syria, Morocco, etc., but its largest circulation is naturally in Egypt.

Silicic Acid in the Pancreas.—Künkle states that the pancreas serves as a receptacle for silicic acid, which is stored in this organ as iodine is stored in the thyroid gland, the pancreas in cattle containing several milligrams. It also forms .1 per cent. of the hairs, where its mechanic purpose is evident.—*Vienna Klin. Rund.*

A University for Women in Moscow.—A gentleman named Astrakoff, a well-known engineer lately deceased in Russia, devised 1,000,000 roubles to be devoted to the foundation of a university for women in Moscow. A medical faculty will be included among the departments. The Russian government has voted to contribute 3,000 roubles yearly toward the maintenance of the institution.—*Phila. Med. Jour.*

Pulp Mummification.—As a mummification agent for pulp remnants, in partial extirpation, formaldehyde in combination with thymol is superior to every other drug-mixture known at present. The paste which I now use consists of:

R. Cocain hydrochlorate..... grs. x.
 Thymol,
 Paraformaldehyde*aa grs. xx.
 Zinc oxid..... grs. xl.
 Glycerol, q. s., to make a paste.

The cocain and thymol should be triturated first, thus becoming paste-like spontaneously. The paraformaldehyde and zinc oxid are added successively, and finally the glycerol. For convenient use I have put the paste in collapsible tin tubes fitted with screw caps.

H. Printz, Items of Interest.

Formalin in the Treatment of Inoperable Cancer.—Mitchell (*Brit. Med. Jour.*, February 11th, 1899) employed a solution of formalin containing 20 per cent. of formic aldehyde to stop the almost constant hemorrhage from a sarcoma of the cheek. The healthy skin was protected by painting it with a solution of caoutchouc. The solution of formalin was applied on a bit of absorbent cotton which was covered with gutta-percha tissue to prevent evaporation. The hemorrhage was stopped immediately and the tumor tissue was necrosed for a depth of about a quarter of an inch. The following day the necrosed portion was carefully cut away and the formalin was reapplied. This treatment was repeated daily until the tumor was entirely removed without the loss of a single drop of blood. Injections of the formalin solution with a hypodermic syringe produced an alarming swelling and gave no better result than the external application. There was no suppuration. This method of treatment is simple, produces no shock, and is absolutely bloodless. This formalin has a much more penetrative power than the usual escharotics. As the necrosed tissue is shaved away, an admirable view is presented of the extent of the new growth, and if desired, the excised portions can be examined microscopically, as they are already hardened.

* Schering & Glatz.

For Neuralgia.—

R. Menthol,
 Guaiacol, of each..... 1 dram.
 Absolute alcohol..... 10 drams.
 Apply twice a day on cotton.

Therap. Monats.

Odorless Iodoform.—Ohmann-Dumesnil recommends the odorless iodoform (Johnson), the difference of which from the ordinary iodoform is in the absence of hydrogen. Besides being non-irritating as well as non-offensive, it possesses all the good qualities of ordinary iodoform in a still higher degree.—*Jour. Amer. Med. Association.*

As a sign of the times Prof. Erb's remarks at the opening of his clinic (Heidelberg University) are interesting. He would have his students understand that the success of the physician is growing more and more difficult. Three factors are active in this: The Krankenkassen with their poorly-paid doctors; the growing quackery ("Curpfuscherei"); and the increased requirements demanded by the growing intelligence of the world, and by the advances in medical knowledge. Formerly the physician was the important social factor in his community; now he has to contend with many rivals. Speaking of the importance of his department he said that nine-tenths of the cases coming before the general practitioner are of *Innere Medicin*.—*Phila. Med. Jour.*

Proprietary Domestic Disinfectants.—The medical profession is already indebted to Dr. Harrington for pointing out the large percentage of sugar-forming material in most of the so-called diabetic breads. He has increased this debt, this time with the help of Dr. Pearce, by pointing out the character of many of the proprietary domestic disinfectants.

The common practice of sending to the apothecary for "a good disinfectant" for use in spit-cups and bed-pans led these two men to investigate the right of the preparations so sold to be so-called.

Twelve preparations examined were as follows: (1) Marsh's Instantaneous Disinfectant, (2) Disinfectine, (3) Platt's Chlorides, (4) Ozonos, (5) Hovey's Chloride of Zinc, (6) Bromo-chloralum, (7) Chlorinated Soda, (8) Carbolic Purifying Powder, (9) Royal Disinfectant, (10) Excelsior Disinfectant, (11) Phenol Sodique, (12) Preparation of Eucalyptus.

After a few preliminary experiments had been made other preparations were added to the list, as follows: (13) A widely advertised nostrum for internal and external use, guaranteed to cure almost all cases of disease, and consisting of an aqueous solution of less than 1 per cent. of sulphuric acid; (14) carbolic acid, 5 per cent.; (15) sulphonaphthol, 5 per cent.; (16) a preparation containing a fairly large amount of cresols, 5 per cent.; (17) formaldehyd, 1 per cent.

Injuries from Alcohol.—Manley calls attention to the fact that a large proportion of accidents, involving surgery, are due to intoxication on the part of the victims, and dwells on its forensic importance. The question of contributory negligence from alcoholism, the administration of alcohol by the laity in cases of injury, etc., are noted, and the effects of drinking habits in favoring complications or retarding recovery are among those he mentions.—*Jour. Amer. Med. Association.*

Causes of Inebriety.—Crothers believes that many cases of inebriety originate in dietetic errors, bad habits of eating, etc., the deranged digestion finding its relief in alcohol, and this in turn aggravating the condition and producing the drink habit. Many cases originate in dietetic delusions; in some of these a systemic starvation exists, due to the peculiar notions held in regard to food. The treatment of this form of inebriety consists essentially in the elimination of toxins and proper nutrition.—*Jour. Amer. Med. Association.*

Pilocarpin in the Treatment of Ranula.—Safrantini (*Journal de Médecine de Paris*) states that he has successfully employed pilocarpin hypodermically in the treatment of ranula. With the view of forcibly distending the cyst with saliva and thus driving out the obstruction in the duct he administered one-sixth of a grain of pilocarpin hypodermically to patient having a ranula of considerable dimensions. This was followed by a slight reduction in the size of the swelling; a second injection, however, effected a cure, the obstruction being completely removed.

Dionin in Phthisis.—Dionin is a combination of hydrochloric acid and ethylether morphin, and is represented by the formula $C_{19}H_{23}NO_3HCl + H_2O$. Dr. Schröder reports (*Die Therapie de Gegenwart*, March, 1899) a series of twelve cases of pulmonary tuberculosis in the second and third stages, treated symptomatically, mainly for cough, with dionin. The hacking cough was mitigated in all cases and entirely disappeared in some; sleep was longer, more restful and refreshing. Dr. Schröder considers dionin superior to codein and morphin as far as cough is concerned, but not as an analgesic.—*Jour. Amer. Med. Association.*

Cocain Addiction.—Lett states that cocain habitues are largely produced by the various proprietary preparations on the market. The amount taken by them daily varies within very wide limits—from a fraction of a grain to even 60 or 90 grains. He describes the symptoms, beginning with abnormal nervous erethism, insomnia, etc., leading to intense physical and mental depression and, finally to dangerous paranoiac insanity. The diagnosis of the habit in its less manifest stages is by urine analysis, and he describes in detail his method of preparing urine, and the tests—that with terchlorid of gold and that with Myer's reagent.—*Jour. Amer. Med. Association.*

THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, AUGUST, 1899.

No. 8

ORIGINAL COMMUNICATIONS.

TOOTH WASHES AND THEIR PREPARATION.

*By F. P. Rutherford, Ph.G., D.D.S.**

In the July issue of this journal I gave some formulas for tooth powders and pastes, and now present a number of formulas for tooth and mouth washes. All of these are pleasant and attractive preparations. For making them one or the other of three methods may be employed; first percolation; second, maceration, and third, solution or dilution. A few words of explanation regarding these methods will be of service.

Percolation is the process of extracting the soluble portion of a drug by passing a liquid through it, the drug or powder being suitably packed in a glass percolator or funnel. The procedure is to weigh the powders and mix them; then prepare the menstrum which is to be used; first dissolve the oils in a portion of the alcohol; if the menstrum contains water, the alcohol and water are mixed together in proper proportions in a vessel of suitable size. The mixed powders should then be moistened with sufficient of the menstrum to make the powders damp. This being done, place a pledget of cotton in the bottom of the percolator; pack the dampened powder on top of the cotton, and on top of the packed powders place a piece of filter paper weighted down to keep the powders from rising when the menstrum is poured on them. Fasten to the neck of the percolator a piece of rubber tubing, to which attach a set-pinch so that the flow of the percolate can be controlled. Then place the menstrum on top of the packed powder in the percolator. When the percolate begins

* Instructor in Bacteriology and Pharmacology, Pennsylvania College of Dental Surgery.

to drop, close the outlet by means of the set-pinch and allow the contents to macerate for twenty-four hours; after that time open the pinch enough to allow the liquid to drop about 20 drops to the minute. Continue to add the menstrum to the drug in the percolator until the quantity desired is obtained. If the percolate should be cloudy this opaqueness can be removed by filtering the liquid through talcum powder.

Filtration is the process of separating liquids from solids with the view of obtaining the liquids in a transparent condition. To accomplish this porous substances called filters are used to intercept the solid particles. Among the substances which can be employed are paper or felt.

Two forms of filter paper are used, the plain and the plaited. The plain filter is seldom used on account of the small surface exposed. The plaited filter is the form almost exclusively employed in filtering operations. As to make these properly requires considerable practice, and a skill difficult to acquire without personal instruction, only general directions will here be given.

The plaited filter is made by folding a circular sheet of paper upon itself, thus making a semicircle, and then subdividing it by repeated infoldings into numerous smaller segments of a circle, these constituting the plaits which, when the paper is opened out in funnel form, present a filtering surface greatly enlarged over the plain filter.

In folding a filter care should be observed not to extend the creases entirely to the apex, but to end them at a distance of about half an inch from it, because the point at which all the creases converge would be thereby so weakened that the weight of liquid would rupture it.

The filter should be moistened with water after introducing it into the funnel and before pouring upon it the liquid to be filtered; this promotes rapid filtering and washes the filter besides. If the liquid to be filtered is immiscible with water this rule does not apply.

Maceration is the process of extracting the soluble portions of drugs by placing them in the menstrum and allowing them to stand in a closed vessel for four or five days or longer. In this process the drug should be shaken or stirred in the menstrum two or more times daily to make the soluble portion dissolve more rapidly.

After the preparation has macerated the required time pour the mixture into a funnel, first placing a piece of cotton in the neck of the funnel, so that the percolate may pass through clear of the insoluble portions. This process is only used when the preparation contains resins, gums and soaps.

Solution or dilution is simply the process of mixing liquids or soluble substances in the desired proportions.

The following formulas have been tried and found to give good results. The dilute alcohol directed in some of them is the alcohol dilutum of the United States Pharmacopœia. When this is not specified 90 per cent. alcohol should be employed.

Formula No. 1.

R. Boracic acid.....	grs. lxiv
Oil of wintergreen.....	ʒss
Glycerin	flʒvi
Alcohol	flʒi
Water enough to make.....	flʒiv

M. Dissolve the boracic acid in hot water, add the glycerin; allow the solution to cool, add oil to the alcohol, then mix the two solutions and filter.

Formula No. 2.

R. Orris, Florentine, powdered.....	ʒvi
Soap bark, powdered.....	ʒv
Oil of wintergreen.....	flʒvi
Oil of cloves.....	gtt.l
Tincture of myrrh.....	flʒii
Alcohol, dilute, enough to make.....	cong.i
Tincture of cudbear.....	flʒvi

M. Make by percolation.

Formula No. 3.

R. Oil of cinnamon, Ceylon.....	flʒiss
Oil of cloves.....	flʒiv
Oil of nutmegs.....	flʒiii
Oil of peppermint.....	flʒii
Musk	grs.x
Tincture of myrrh.....	flʒii
Soap (Castile).....	ʒiii
Alcohol	Oviii
Tincture of cudbear, q. s. to color.	

M. Dissolve the soap in the alcohol; add the oils, musk, tincture of myrrh and tincture of cudbear; macerate three days, then filter.

Formula No. 4.

R. Orris root, Florentine, powdered.....	℥iv
Soap bark, powdered.....	℥iss
Oil of rose.....	gtt.x
Oil of neroli.....	gtt.v
Oil of cloves.....	gtt.vi
Orange flower water.....	℥℥iss
Alcohol, dilute, enough to make.....	Oii
Tincture of cudbear, q. s. to color.	

M. Make by percolation. Mix the powders dampened with a portion of dilute alcohol; pack in the percolator; then dissolve the oils in a portion of the alcohol before adding the water, after which pass all the liquid through the moistened powders in the percolator.

Formula No. 5.

R. Tincture of vanilla.....	15 parts
Tincture of pyrethrum.....	15 "
Spirits of rosemary.....	30 "
Spirits of rose.....	10 "
Tincture of cudbear, q. s. to color.	

Mix and filter.

Formula No. 6.

R. Soap (Castile).....	℥iii
Oil of orange peel.....	gtt.x
Oil of cinnamon.....	gtt.v
Water	℥℥iv
Alcohol	℥℥xii

M. Shave the soap into ribbons, melt with the water in a water bath, adding the alcohol while still warm; continue the heat, if necessary, until the solution is effected; when cold, dissolve the oils in the liquid.

Formula No. 7.

(Wash for Fætid Breath.)

R. Salicylic acid.....	4 parts
Saccharin	1 part
Bicarbonate of soda.....	1 part
Alcohol	200 parts

M. A teaspoonful in a tumbler of water makes the proper dilution for use.

Formula No. 8.

R. Thymic acid.....	0.25 grams
Benzoic acid.....	.3 grams
Tincture of eucalyptus.....	15cc
Alcohol	100cc
Essence of peppermint.....	0.75cc

Drop enough into a glass of water to cause turbidity, and rinse the mouth as frequently as conditions indicate.

Formula No. 9.

- R. Soap bark..... ℥iv
 Glycerin fl℥iii
 Alcohol fl℥v
 Macerate four days, and add:
 Carbolic acid, in crystals..... ℥i
 Oil of rose geranium..... Mx
 Oil of cloves..... Mx
 Oil of rose..... Mx
 Oil of cinnamon..... Mx
 Tincture of rhatany..... fl℥iss
 Rose water..... fl℥xxx
- M. Macerate another four days, and filter.

Formula No. 10.

- R. Thymol 20 parts
 Oil of peppermint..... 10 "
 Oil of cloves,
 Oil of sage, of each..... 5 "
 Oil of origanum,
 Oil of sassafras, of each..... 3 "
 Oil of wintergreen..... 0.5 par.
 Cumarin 0.5 "
 Alcohol, dilute..... 1000 parts
 Tincture of cudbear, q. s. to color.
- M. One teaspoonful to one glassful of water may be used.

Formula No. 11.

- R. Essence of English mint..... fl℥iiss
 Essence of French anis..... fl℥iMviii
 Essence of anis seed..... fl℥iMviii
 Essence of cannila, Ceylon..... Mxv
 Essence of roses Mviii
 Essence of cloves fl℥ss
 Tincture of amber fl℥ss
 Tincture of vanilla fl℥iiss
 Tincture of cochineal fl℥viMxxvii
 Tincture of logwood fl℥ss
 Tincture of orris root..... fl℥iiss
 Sugar ℥iiss
 Alcohol Oii℥i
- Mix.

Formula No. 12.

R. Fluid extract of quillaya.....	fl̄ss
Alcohol	fl̄ss
Glycerin	fl̄ss
Distilled extract of hamamelis.....	fl̄iii
Oil of wintergreen.....	Mviii
Oil of cloves.....	Mv
Water	fl̄viii

M. Dissolve the oils in the alcohol, and add to other ingredients and filter.

Formula No. 13.

R. Soap bark.....	ṡviii
Pellitory root.....	ṡi
Orris root.....	ṡi
Benzoic acid.....	ṡi
Cinnamon	ṡi
Tannic acid.....	3iv
Borax	3i᠑i
Oil of wintergreen.....	fl̄ii
Oil of peppermint.....	fl̄3iv
Cochineal, powdered.....	3iii
Sugar, white.....	lb.i
Alcohol	Oiii
Water	Ov

M. Mix the oils with the alcohol, add the other ingredients; macerate for six days, then filter.

*Formula No. 14.**(Astringent Mouth Wash.)*

R. Nutgalls, powdered,	
Peruvian bark, powdered, of each.....	3ii
Orris root, powdered.....	3i
Infusion of rose.....	fl̄3iv

M. The infusion to stand for a day upon the powders, with frequent stirring; then decant and filter.

*Formula No. 15.**(Astringent Mouth Wash.)*

R. Tincture of myrrh.....	fl̄xviii
Tincture of benzoin.....	fl̄3viii
Calisaya bark, powdered.....	ṡi
Red rose leaves, powdered.....	ṡss
Cochineal, powdered.....	grs.xxx
Macerate, filter, and add:	
Alcohol	Oii
Oil of roses.....	gtt.xxx

Formula No. 16.

R. Resin of guaiac.....	℥ii
Pellitory root, powdered.....	℥ss
Cloves, powdered.....	℥ii
Nutmeg, powdered.....	℥ss
Alcohol	fl℥xii
Macerate four days, filter, and add:	
Oil of wintergreen.....	gtt.xl
Oil of bergamot.....	gtt.xl

Formula No. 17.

R. Orris root, Florentine, powdered.....	℥iv
Red rose leaves, powdered.....	℥i
Quillaya, powdered.....	℥i
Cochineal, powdered.....	℥ss
Alcohol, dilute.....	Oiv
Oil of rose.....	gtt.xxx
Oil of orange.....	gtt.l
Essence of millefleur.....	fl℥i
Sugar	℔ss.ii
Water	Oi

M. Add all the powders and percolate; mix the oils in alcohol and add to the percolate

Formula No. 18.

R. Oil of anis.....	fl℥xvi
Oil of cinnamon.....	gtt.xlviii
Oil of cloves.....	fl℥viii
Oil of peppermint.....	fl℥xi
Gallic acid.....	℥xvi
Alcohol	cong.i
Tincture of cudbear to color.	

Mix.

Any of the above formulas can be prepared at a very moderate cost, especially when dilute alcohol is employed. As a rule it is an economy and secures better results to employ a skilled pharmacist for the work of compounding; but the dentist should know the actual cost of the ingredients and also the exact character of the resultant product when the formula is made up as directed.

AN OBLIGATORY POST-GRADUATE COURSE.

By William H. Trueman, D.D.S., Philadelphia, Pa.

An editorial in the September number of the *Pacific Medical and Dental Gazette* (1898), entitled "Work for the Colleges," is seemingly based upon the assumption that a dental student should have acquired a thorough professional education at the close of his college course; and that his after failings indicate either insufficient preparation for his professional studies, or deficiencies in the college teaching, or want of due care in accepting him as a student or in granting him a diploma. The editorial was prompted, the writer tells us, by questions asked of him by presumably advanced students, of such a nature as to suggest that the act of thinking or reasoning intelligently is not sufficiently developed by the present course of study; and he says, "The student who believes a thing is so because his teacher says so, has laid but a poor foundation for the knowledge he thinks he is acquiring." He farther complains of the poor quality of contributions sent him by dental graduates, some so defective in grammar and expression that he is compelled to write them over, in order to preserve the writer's thoughts, involving a much greater expense of time and mental effort than would be required to write an original article.

He furthermore complains that the Code of Ethics is not taught and enforced as it should be. It should be so thoroughly drilled into the students, he suggests, by "line upon line and precept upon precept" that in after life they will be able to resist the temptation to depart from it. As part of this, they should be instructed to appreciate the true value of society work, and should be urged to at once unite with the most convenient local organization, and take an active part in it and the other societies to which it leads. He closes with the usual plea for a higher standard for both entrance and exit from dental colleges.

Now, this is all very well; the points are well made, and nicely put. While freely granting this, however, I am not impressed with the conviction that they betoken either thoughtfulness or careful consideration. I heartily agree with him, that the art of thinking, the faculty of reasoning from cause to effect, the ability to see and understand what is seen; to observe, to compare, to reflect, and to reach conclusions for one's own self, independent of the promptings and teachings of others, is an art

that should be developed and cultivated to the highest attainable degree. I am not so sure, however, that the college is the best place to acquire it. To my mind, in the college, the student should be most occupied with the principles of the science, the ground work, the foundation, as it were, from which his future attainments may be securely built. He must be taught that A is A, and that B is B. He must accept the elementary and preliminary instruction on faith. If permitted at this stage to question and to doubt, he will never be quite sure that B-A is ba, or that A-B is ab. They may not be. The time may come when he may be able to prove, beyond a doubt, that his teachers' instruction was based on false premises; but that time is not during his student days. He must have confidence in his teacher, and implicit faith in his teaching, or he will never acquire a foundation upon which he himself may build. When he has made himself master of all that his teacher has taught, and acquired a sufficient mental growth and a firm and certain grasp of the principles of the science, he then, and not until then, is fully equipped to go back of the things taught and work out the problem for himself; and question, if need be, each factor in the case.

I am convinced, also, that the writer of the editorial in question, and those who with him believe that a higher standard for college entrance will prove an effective sieve to separate the worthless dross from the more valuable material, or the tares from the wheat, have not given the matter that careful consideration its importance demands. It is very unfortunate that there has been an admixture of tares among the wheat in all departments and vocations of life. It is a condition, however, that has long existed, and in endeavoring to combat it, bear in mind, if you please, the admonition of the Great Teacher, lest excess of zeal prove the greater peril.

Human capabilities are enigmas the Gods alone can solve. Yonder is a man, who as a school-boy was ever found in the rear of his class, and who was taken from school early on that account. His school record, and possibly his attainments, when he entered a dental college, promised but little for the future, and yet, while not making a brilliant success, he has proved beyond question his fitness for the dental profession. His many contributions to its literature have been copied and recopied by journals at home and abroad; some have been taken up by outside scientific journals and carried world wide. Had he been refused

admission to a dental college, the dental profession would have lost one who promises to be a useful and progressive member. His schoolmate, who early reached the head of his class and stayed there, thanks to an unusually retentive memory, and who was continually held up to my friend as an example he would do well to follow, has reached his highest attainable level as an indifferent journeyman mechanic. Who would have thought it, when they were school-boys together; who would have thought twenty years ago, when they both entered a dental college, that a day laborer's son, with no social or educational advantages; possessing no capital other than pluck, energy and mechanical skill, would be to-day the master of a refined and lucrative practice, honored and respected by his professional associates, while a fellow-student, a graduate of a classical school, an ideal candidate for professional life, with all the advantages of social position and influential friends, has found his honestly earned diploma a total loss. Although a man of good habits and correct deportment, he has failed to acquire practice, and is now, in an humble vocation, earning but a meager living. His career has proved as miserable a failure as his friend's has proved a brilliant success.

It is not always, I grant, that the laggard in early life outstrips his more precocious brother; and I willingly admit that such instances are more often than not illusively encouraging to the dullard and the dullard's friends. The road to fame and to higher planes of usefulness, we must concede, is narrower and more rugged to the humbly born than to those more highly favored at the natal hour. It is, however, and ever should be, open and free to all.

Except in a limited sense, it is not the work of the colleges, dental or medical, to gauge a student's fitness for his chosen vocation. It is their business to educate, to furnish opportunities to acquire—not a full and thorough professional education, for that is impossible—but sufficient of the theory, and as much of the practice as a student in leading strings may be able to absorb; and to then pass judgment upon his fitness to enter upon that "Obligatory Post-Graduate Course," which will he, nil he, of force, confronts all the instant they enter, practically, professional life. It is this which tests the temper of their blades, and calls in question every factor which enters into the complex problem of success or failure.

Neither birth nor education, personality, opportunity or po-

sition; brawn or brain, insures the one or invites the other. It is the harmonious blending, the proper attuning of them all to one's surroundings, or the want of it, that fixes our position in life in any vocation we may select. Pluck against position, energy against ability, adaptability against respectability, are ever uncertain factors in this complex and complicated problem. A plodding, determined, resolute will stands for much, and often makes amid most discouraging surroundings an envied opportunity. And so the battle goes. It takes a wise man to accurately forecast a youth's horologue.

When the student has done with his college and begins in real earnest his life's work, he enters another school, is brought into contact with another set of teachers, to learn other lessons in an obligatory post-graduate course. It is then, I think, that some of the mischief sought to be laid at the door of the colleges is done. If he enters society work, and there attempts to exercise that freedom of thought to which he is entitled; to form and express his own opinions, he will probably soon find that such conduct is not encouraged. He may be reminded that such ideas as his are not to be tolerated. He may at the same time receive, as the writer did, a lesson in ethics, such as is not taught in the colleges. In response to a request, I gave a method of treatment in certain cases which had for many years given me satisfactory results. The next speaker, in the course of his remarks, with much vim exclaimed, "I have no respect for the method of the last speaker, and none whatever for the lazy, miserable botches who practice it." While such things are permitted in dental societies we can hardly expect young men to take much interest in them, no matter how much the importance of society work is taught in the colleges.

I think the importance of this post-graduate course, as a part of our educational system, has been much neglected. Too many, like the writer of the editorial in question, fail to give to it that close and careful attention its importance demands. The student, no matter how well prepared, or how thoroughly he and his college have utilized the allotted period of professional studies, has much to learn, and much to do, if he would make for himself a successful career. He must find, first of all, a place in which to work and live. The world is large, and its wants as varied as they are numerous. It is, however, no small task to find amid these many openings the place one can successfully fill. I know

that it is a prominent idea with the thoughtless, that a thoroughly well-educated graduate, well-drilled in the peculiar code of ethics, to which the editor refers, will prefer to starve rather than accept a position incompatible with his exalted ideas of professional dignity. He will, no doubt, have a better chance than will his less fortunate brother. But with both, if depending upon their own exertions, it may soon become a question of what they can get, rather than what they will or will not accept. Greek verbs and Latin gerunds are far less satisfying to an empty stomach than prosy beefsteak and cabbage. Is it, indeed, a venal compromise of professional dignity to accept a less desirable position and make the best of it, notwithstanding its small fees and undesirable surroundings, rather than waste one's time with the nose to the grindstone, waiting for something better that may never come. So long as a professional man's remuneration is measured by his skill, or the estimate of it formed by the community, so long will there be a demand that it be graded to meet the needs of a long and a short purse. While it is well to spur a young man's ambition; to urge that he should strive most earnestly to make a name for himself that will bring honor to the profession of his choice, it must not be forgotten that to properly carry on the world's business we must have vessels of clay as well as vessels of gold, and that each in its place is as useful and indispensable as the other.

The sorting out and the weeding out we must leave very largely to this obligatory post-graduate course none can escape. More certainly, more effectively and more justly than can a college faculty or a dental examining board, it tests the candidate's fitness for the position he seeks, and is quite as likely to reverse as to confirm their decision. If it were possible to determine, with the degree of certainty some writers in criticising our educational institutions seem to hold, a student's fitness, and the probability of his making of the profession a real success; if we could, with justice, charge the failures of graduates to make a decent living, and their failure to prove a credit to the profession, to the greed of the colleges; if it were possible for anyone to know when a student presents himself what he will be ten or fifteen years hence, what a revolution we might make in the world. Would not the same power enable us to know whom to educate and whom not to educate? Why should we be taxed for the training in our public schools of so many who would be quite

as useful to the community without it; or those doomed to die before reaching a useful age? Why not station at the parturient couch some far-seeing one to strangle at their birth those who in after life will develop into thieves and murderers, their end to be imprisonment or the hangman's rope? So long as success, in its highest and best sense, depends so largely upon matters over which the educators have not, and cannot have, the slightest control, the much-talked of weeding out prior to the college course will remain impracticable.

THE POSSIBILITIES OF AMALGAM.

B. F. Arrington, D.D.S., Goldsboro, N. C.

The possibilities of amalgam as a tooth preserving material, as compared with gold, are variously estimated. The diversity of view will probably continue until more definite standards as to the composition of amalgams, their preservative qualities and mode of use are established. There can be no question as to the true worth and merit of amalgam as a filling material where a good article is used in the proper manner. The need for amalgam is greater than the need for gold, because the general demand for professional service is more universally met by it, for there are certain classes of the community in every locality needing the services of dentists, but unable to afford the use of the more expensive material.

In dentistry, as with medicine, the poor as well as the rich have a claim upon us, and must be served faithfully and conscientiously with or without compensation. For other special or general diseases patients are treated by physicians regardless of their financial condition, and poverty should not preclude humane professional service at the hands of dentists any more than at the hands of physicians. From this consideration, if from no other, arises the need for amalgam, or some like inexpensive, durable, non-injurious material that may be used for successful preservation of the teeth.

Amalgam being so useful and so necessary, it becomes of the utmost importance that as thorough instruction for its correct and skilful employment should be imparted in dental colleges as for the use of gold. If such was the accepted and universal practice the outcry against amalgam would soon abate. It is the incorrect use of amalgam that causes much of the com-

plaint and prejudice against it. In the use of gold there are also abuses, and much imperfect and discreditable work is done, but not to such an extent as in the use of amalgam. If amalgam is worth using at all as a tooth-preserving material, it should be used to the best advantage, and with all the care and skill exerted in the use of any other material; not a single detail of an operation should be slighted any more than in the use of gold. The object is to save the teeth, and that means unvarying thoroughness throughout, both in the preparation of cavities and the use of material. If the preparation of cavities for gold and the introduction and finish of material were slighted and botched, as in the use of amalgam, I question if half as many teeth would be saved with gold as with amalgam. It is an unquestionable fact that want of thoroughness has caused much of the prevailing prejudice against amalgam. In the interests of humanity we must seek for the most effective means for preserving the greatest number of teeth for the greatest number of people; not discarding amalgam, but coöperating in an effort to correct false practice and remedy abuses. Thus millions of teeth now neglected and sacrificed could be preserved, and all classes, the poor and rich alike, could and would share the advantages and blessings arising through conservative, skilful dentistry.

To improve amalgam practice would not, and should not, in any way detract from the true merit of gold as a filling material, or weaken the appreciation in which it is held by the public. There would unquestionably be less use of gold for filling purposes, but that would not prove hurtful to the profession or patients. The question involved is the more general preservation of teeth for the greatest number of the human family. If that can be accomplished through a more liberal and better use of amalgam, then it is right and proper that it should be used freely whenever required.

When we consider the rapid increase in use of amalgam, notwithstanding prevailing abuses, we must fully realize that amalgam is "here to stay," and will keep the lead as a tooth filling material until something better is produced to take its place. With such a fact confronting us, it behooves us to make the best of the situation and, as far as in our power lies, remedy evils that exist that those served may be better served, and the profession be rescued from reproach.

Apart from the abuses of amalgam, what serious objection

can be urged against it? Only the crank or those influenced by unreasoning prejudice question its merit and preserving qualities when rightly prepared and properly used. Daily practical observation should be convincing upon that point, and any man who has the ability to manipulate gold successfully in filling teeth, and can not or does not use amalgam to favorable advantage, is a poorly-qualified and half-finished dentist. Amalgam bears about the same qualitative relation to gold for the preservation of the natural teeth as does rubber to gold as a base for artificial dentures; both are excellent and both a blessing to the human family if rightly employed.

If the professors of operative dentistry in the various dental colleges of this country would open correspondence and agree upon a definite line of instruction in the use of amalgam, making it more thorough and practical, both in lectures and in clinical demonstrations, great good would be accomplished and the charge that professors and demonstrators are neglectful would not be so universal as at present, and the necessity for dental examining boards to maintain a high standard of dental practice would be less apparent than it now is.

I believe that our dental colleges are equal to the task of doing all things well in teaching and preparing students to commence practice, and that they can and will establish and maintain a standard of practical progress in practice which will be beyond criticism.

Some years ago Dr. Clowes, the "Old Roman" in the use and advocacy of amalgam, said, "The tendencies of amalgam are wholly conservative, and its possibilities for good are beyond belief." The truth of his assertions are being realized daily. Prejudice and ignorance on the subject are vanishing, but there is much need yet for reform and improvement. Before the close of another decade much may be accomplished on a truly conservative line of dental practice, and the time may not be far distant when the universal sentiment will be, as expressed by a prominent member of the profession on the Pacific slope more than twenty years ago, "We shall do better I think when a broader knowledge is joined to our skill, and when we can do more to make our operative skill less frequently necessary."



ABSTRACTS AND SELECTIONS.

DISCUSSION ON PORCELAIN INLAYS.*

Dr. Hamilton: While I have always been interested in porcelain inlays since seeing some remarkably good ones done by Dr. Ames, of Providence, nearly twenty years ago, yet I have done but few of them, and am here to-night to show the Jenkins apparatus which Dr. Abbot, of Berlin, presented to Dr. Hadley and myself, rather than as an expert in the work.

From the dentist's standpoint inlay work has not before been brought to the degree of perfection that most of our other operations have been, and so has been unsatisfactory, but it has, as a rule, pleased the patients. It is remarkable how well a poor inlay looks at a distance of a few feet.

The Jenkins system consists of a new body, low fusing but of great strength and sharp edges, and a great variety of good colors. Then there is a very neat furnace, all beautifully gotten up so that the inlays can be made in the operating-room.

The impressions of the cavity are taken in No. 30 or No. 40 gold-foil, and embedded in a paste of powdered asbestos. After drying this investment, the body, mixed with absolute alcohol, is put in the matrix and fired. For small inlays more body is added and fired a second time, and for a large one a third firing is necessary. This should bring the inlay to the proper contour so that no surface grinding is necessary, although the body takes a good polish.

Dr. Williams: I would like to inquire whether this body is fused at a higher or lower temperature than the Downie?

Dr. Hamilton: The Downie is quite a degree higher. You can use the Jenkins body in a Downie furnace.

Dr. Werner: How much shrinkage is there in the average case in the way you have up to the present learned to manipulate it?

Dr. Hamilton: The shrinkage of the first firing is considerable; then the body added for the second firing fills the crevice at the edge. The third firing gives contour.

Dr. Werner: How do you add the extra body?

Dr. Hamilton: Put on the body in paste form with a small brush or a spatula. You do not disturb the first inlay after the

* At the meeting of the "American Academy of Dental Science," January 4th, 1899.

first firing. It does not pull away from the matrix, so that your fit is very exact.

Dr. Wilson: I have lately seen a patient just from Dr. Jenkins' office, and have had the opportunity of seeing some very handsome inlay work. It must take a great deal of time and patience to bring about the results obtained by Dr. Jenkins, and it would seem to me, in many cases where an exact impression of the tooth could be taken, much time would be saved, more especially in cavities running beyond the margin of the gum. Dr. Jenkins inserts a good many inlays in this class of cavities very skilfully, and I am curious to see how long they will last. I think the statement has been made that this body is harder than the teeth furnished by the Dental Depots. This I do not think is possible, although I have no doubt it is sufficiently strong for practical purposes in doing ordinary inlay work.

Dr. Briggs: I have always been very much interested in porcelain fillings, and some time ago I had occasion to do some work for a patient who, like the one referred to by Dr. Wilson, had been in Dr. Jenkins' hands. I was very much struck not only with the beauty and match in color of these fillings, but with the fit in inaccessible places, which I realized I had very much difficulty in trying to get with such methods and materials as came within my knowledge. I wrote to Dr. Jenkins, complimenting him on the result he had obtained, and asking him how he did it. In reply I got a letter outlining this process of his, and also stating at that time that he was very sorry that he could not supply any to anybody in this country. About the same time I received a circular from the manufacturers describing this process. Through the kindness of Dr. Hamilton, who let me have some of the enamel, I have been enabled to do a little experimenting in connection with this subject, and my summing up of his outfit and process, as it appears to me, would be something like this: That he has given us the ability, by using this thin gold, to make a matrix of the cavity which is practically perfect; and he has given us an enamel that has excellent color and that flows in this matrix without destroying it, and by repeated fusings can be made to fit the matrix perfectly. If one makes these other enamels or bodies in a platinum matrix, they adhere to the platinum, and many times your filling is spoiled, but with the Jenkins enamel this gold matrix is readily removed, and you have a perfect filling. This may be due partly to the technique, the me-

chanical part, but a great deal of it comes through the make-up of his enamel. You cannot do it with a high-fusing body, because the gold melts before the body is biscuited. You cannot do it with the low-fusing bodies that we have in the market, because when they are done they do not look like anything that was ever in the human mouth. I deplore the fact that I cannot get hold of the Jenkins enamel, even if I could not get the apparatus, for I feel that if I had that enamel I could secure very good results by using some furnace which was not quite so dainty as Dr. Jenkins'. I wish he would publish of what the enamel is composed.

In regard to taking impressions for porcelain fillings referred to by Dr. Wilson, I have done a great many in that way, and have had the fillings baked by others—Dr. Moffat has made some for me. Still you never get an impression of a cavity that is perfect. When the inlays come to you they have to be touched up and ground, and I have never been able to get as perfect a fit as I would like. As far as the strength of these enamels is concerned, they seem to me exceedingly strong. I think Dr. Jenkins has found something that is very useful to us.

Dr. Daly: I have read about Dr. Jenkins' method of making and inserting porcelain fillings with a great deal of interest. I regretted that the outfit was not to be obtained at once, and I congratulate those gentlemen who have been fortunate enough to secure one.

The method which I employ is one that I do not think will be of any interest to you, as it is very crude, for I have been disappointed in the Downie furnace with the rest of you, because after burnishing my platinum-foil for the matrix, and placing in that the body in anticipation of getting a filling that will be perfect in color, when it is fired many times you cannot help feeling that it is "all a delusion and a snare," for instead of your perfect color you oftentimes get a translucent bit of porcelain more like little drops of glass. After getting this result and cracking it a dozen times or so, I have finally returned to the method by which I know it can certainly be done provided time enough be taken, which is by taking a porcelain tooth of the right color and grinding it down to fit—a long, tedious piece of work. But if your assistant can do that for you, it will save considerable time, and I have had the best and most certain results by that method of any that I have tried. We all have to deal with atrophied spots

on the teeth—those tiny cavities and fissures extending across from mesial to distal surface—and by taking the tiny pieces of porcelain that the White Company furnishes, and one of the burs the circumference of which corresponds to the little disks of porcelain, you can grind down to fit accurately these tips of porcelain or porcelain rods which correspond exactly to the colors of the teeth. In making the larger porcelain fillings I burnish into the cavity a matrix of the thinnest platinum-foil that can be had; then, carefully withdrawing it, I turn Melotte's metal into that, and then taking a White or an Ash tooth, of the proper color, cement a piece of the porcelain of that tooth onto the metal and then grind—and it is a grind to shape it to place, and then you can cement your inlay in place. I think many lay too much stress on How shall I cement that little piece of enamel to place? It doesn't require anything but a good cement to cement it to place with ease and accuracy.

Dr. Bert Russell, of Keene, N. H., showed at a dental meeting his method of putting in inlays—and it was with the inlay rods, by the way.

These porcelain rods are cemented into a porte-polisher—sticky wax will answer; then, with the aid of the engine, grind to place and then cement to place and polish. It requires care and skill in dressing these little pieces of rod not to disturb the enamel, and it takes time to do it, but it can be done; it is done every day by him, and I adopt that same method without disturbing the enamel or injuring it in any way, and yet I can say that they do not break away from the cement very often. Once or twice I have had them dislodged by the aid of the tooth-brush, but it is very seldom that they give way. At the same time, I contend that all inlays, and not only inlays, but gold fillings and crowns should be examined from time to time with great care and painstaking to see that they have not failed. We know that frequently gold fillings fail, no matter how nicely put in, and we have also seen crowns give out because the best cement that we know of had washed out. So we must not be surprised if inlays fail and have to be replaced.

I fear I have been disappointing to you in describing such a crude method, but certainly, with the Downie furnace and the bodies that have come to me, they have been quite as disappointing to me and, I have no doubt, to many of you. I have never yet found anything that will compare with the coloring as shown

by the sample in the first firing, neither have I seen a body which would produce a color, I was going to say, twice alike.

Dr. Eames: A patient of mine recently came from the hands of Dr. Jenkins, who had put in several inlays in teeth which I had not ordinarily considered suitable for such work. One of these was in the mesial surface of an upper lateral, the tooth being small with a thin cutting edge. The cavity, or rather the inlay, formed a part of the cutting edge, and I shall watch the durability of this piece of work with much interest. It was very nicely done, and makes a satisfactory appearance in the mouth, but it can be seen five or six feet away.

The other inlay corresponded very nearly with the one described by Dr. Wilson, being in a lower bicuspid, labial surface, extending below the margin of the gum. It seems to me that gutta-percha or gold is preferable to inlays in such cases, or what I often prefer in such cavities extending far below the gum margin is to build up the gum line with alloy, and finish with gold, cement, or gutta-percha at a subsequent sitting.

Dr. Williams: I would like to ask Dr. Hamilton what cement he prefers?

Dr. Hamilton: I do not profess to be any authority on cements for this purpose. I have tried several of them—the Harvard, the Xenolite, and Weston's crown and bridge cement. The latter offers many points of advantage. It mixes very thin, indeed, and it is said to harden just as well as the slower-setting cements, but I do not think it has the strength. At present I prefer the Harvard.

Dr. Daly: In using cement in these fissures and little pits of atrophy, to cement your porcelain to place you must not use your cement too stiff. Of course the porcelain is a non-conductor and is not affected by thermal changes, but I believe that all teeth should be protected by some varnish. The cavity should be coated with sandarac, or Canada balsam dissolved in chloroform, before you put your cement in. I feel that even amalgam fillings—if you use amalgam—can be made more comfortable to the tooth if the cavity is smeared with some kind of varnish before they are put in.

An advantage of the porcelain fillings besides their beauty, and I might sometimes say invisibility, is the fact that they are not affected by thermal changes.

Dr. Gillett: For ten years or more I have made occasional

use of porcelain fillings, using several different kinds. I have not been satisfied with any. Recently, I have been experimenting with the Jenkins outfit. I will pass round some samples showing some of the possibilities in color and form, and the consistency of the fused material. My estimate of the Jenkins outfit and process agrees very closely with that expressed by Dr. Briggs.

Dr. Jenkins has made feasible the gold-foil matrix and provided a low fusing material that is very much better than any that I have previously seen. It is far superior to the Richter, although fusing at nearly as low a temperature. The general color is good, and the shades do not change when fused with reasonable care. Material from the several bottles will practically always match the corresponding color sample. It resembles porcelain in appearance, but the thin edges look and act more like glass. It is hard enough for practical purposes, but I have found no difficulty in polishing it down with sandpaper disks. I think it sufficiently strong for labial and approximal cavities not exposed to very much stress, but should hesitate to use it on exposed corners. I may be mistaken in this, as Dr. Barrows, of Berlin, told me last summer that he was using it in crown- and bridge-work and found it satisfactory. Whether the profession abroad is as critical as to its standard of perfection in such work is a question for consideration. Dr. Hamilton's remark, "that it is surprising how much satisfaction a poor inlay will give," is very true. My first Jenkins' inlay was not satisfactory to me, but every one else is wonderfully happy over it. Others are entirely satisfactory to me, the color, fit, and finish being thoroughly good. I am satisfied that they will never be discovered so long as the cement maintains its integrity.

I would like to ask Dr. Daly how he would make an inlay from a porcelain rod to correspond to the larger inlay now going round.

I will call attention to the fact that for approximal work the wedging needs to be more (perhaps twice as much) as for gold work in order to get the matrix out and the inlay in. Often cavities will have to be opened more, one wall being opened back to the level of the floor of the cavity.

The fit depends entirely upon the accuracy of the gold matrix. If you make this accurately you get a perfect fit. It is very easy to spoil the matrix in tearing it out.

Dr. Joseph Head, at a recent clinic before the New York Odontological Society, showed a useful way of building out a corner of an incisor. He first crushed up a porcelain tooth of about the shade desired, and placed some of the crushed pieces in the matrix so they would stand out and give the desired contour. The low-fusing material was then added to fill the crevices and round out the surface.

Another point of interest was the fact that platinum-foil will be softer if annealed in charcoal, or, what is simpler for most of us, between sheets of asbestos, so keeping the air away while it is heated.

I have made crowns using the "Downie System"—a porcelain facing attached to a gold cap and pin, and backed with Jenkins' body, the front of the band being also covered with the body. I question its strength for such use, but think there are places in crown-work where it will be useful.

One important point to be mentioned is that this work, if well done, will take longer and cost more than to put in good gold fillings. My experience would indicate that it will often take twice the time. If you only prepare the matrix, it will be simpler, but it will require an assistant with knowledge of the anatomy of the teeth, and good mechanical and artistic ability to warrant intrusting even the fusing to other hands.

Dr. Daly: Referring to this case which Dr. Gillett asked me about, I could not do that with the porcelain rods. It is not possible. I have always resorted to the carver when such pieces as that came.

Dr. Werner: I think Dr. Gillett brought out a point that has not been touched upon, and that is time. Will Dr. Hamilton please tell us his experience in that regard?

Dr. Hamilton: At present it takes me twice as long to make a satisfactory inlay for a medium-sized cavity as it would for gold, but I think with more experience I can become a much more rapid worker.

Dr. Wilson: I think the inlay rods are more or less unsatisfactory, and, as Dr. Gillett has just said, there are a great many irregular places where it is impossible to use them.

Something has just been said about "a perfect fit." The question is, What is a perfect fit? Gold fillings can be put in with such perfect joints that they cannot be detected with an explorer. On the other hand, it is a pretty difficult matter to put

in a porcelain inlay where the joint cannot be detected with the aid of an explorer.

Dr. Brackett: Before I begin my remarks on this subject, here is a specimen which helps to answer the doubts of the different gentlemen as to fit, and here is a magnifying glass under which it can be examined.

It seems to me that we are under very great obligations to Dr. Jenkins for what he has accomplished in providing us with a material that is fusible in a gold matrix—a matrix which may be accurately adapted to the cavity—and which seems to have great strength and excellent color.

We are under personal obligations to Dr. Charles Abbot, of Berlin, who has put this matter before us in such a comprehensive manner, and to Dr. E. D. Barrows, who has been Dr. Abbot's assistant for quite a number of years, and who brought to this country last summer the first apparatus of this kind which was seen here, and who was so good as to unpack the apparatus in Newport and give a demonstration of its working. I have a feeling of gratitude to these gentlemen for having done this much. I have also a personal feeling of gratitude to Dr. Barrows for procuring for me, as he did for Dr. Gillett, one of these outfits complete. I do not understand that there is any difficulty whatever in any of you gentlemen being similarly provided, except it be the disparity between the supply and demand. The apparatus itself retails in Germany at four hundred marks, very nearly one hundred dollars of our money, to which must be added the duty (which amounted, on the two that we received, to eighty-five dollars and fifty cents, or, say, forty-two dollars and seventy-five cents for one) and several other charges, so that by the time the apparatus is at your office it means an expense of one hundred and fifty to one hundred and fifty-five dollars. I have no doubt that any gentleman in this room who desires this apparatus, and will submit to Dr. Jenkins his application for one, can have it without any great delay.

In the demonstrations that Dr. Barrows made to us there was no laborious exertion required to do the work. There comes included in the apparatus an English blow-pipe, that is most easily operated by an oscillating motion, and I should say that the sum total of power needed in making an inlay is less than the sum total of power required in the making of a Richmond crown. The colors are shown as demonstrations from baked specimens.

Dr. Barrows made the suggestion to me that additional colors could be made by the blending of the bodies as they come. The selecting of the body to be used is done by matching the tooth with the sample card; for instance, if the baked specimen on the card marked "No. 17" matches the place where the inlay is desired, the inlay that you make out of the bottle No. 17 will match it equally well. As to the strength of the material, judging from the experiments which I have made, such as pounding it on the anvil with a hammer and crushing it, it seems to me to compare favorably with the strength of carved porcelain teeth such as I have got from Mr. Woodman.

It does not seem to me that there has been any overstating of this thing when accompanied by accuracy of manipulation and deliberation in the work. Dr. Barrows in his own practice, being a most energetic, indefatigable worker, follows this plan: He takes his impression, procuring his matrix and matching the color in regular office hours as the patient comes to the chair, and dismisses his patient for another sitting; then he makes his inlays quite largely with his own hands, and often in the evening, and is able in this way, with this long-continued labor himself, to do a great deal of work that could not well be all accomplished within ordinary office hours.

With reference to the objections that have been raised to the inaccurate fit of inlays that extend below the gum tissue, it seems to me that that is a mere trifling circumstance which could be readily overcome by building the tooth up to the gum level with some other and proper material and fitting the porcelain inlay to the rest of the cavity.

I hope that when this discussion is published it will be understood that we have an intelligent appreciation of the work of these dentists in Germany, and that we are grateful for what their labors have accomplished in our behalf.

Dr. Daly: These corners and contours of Dr. Gillett's are certainly restorations, not inlays, but they come under inlay work. I am surprised to see the contour of it, and to see the density of that material. You know that the Downie body never furnished that. You can restore corners with the Allen body, or with the Consolidated bodies, but I should not expect to get such a contour. I have always felt that it was necessary to bake in pins until the past few years, but I now feel that the cement is tenacious enough to do all that is required of it.

Dr. Gillett: Dr. Wilson has taken exception to my statement as to perfect fit, and perhaps it does need modification. What I had in mind was that the fit would be perfect from the standpoint of practical satisfaction—that it would appear well. I have inlays in service which I cannot discover at a distance of three feet, although I know their exact location.

As regards utility, personally I would, for the present, limit it to those places in the mouth where we care more for appearance than for the very highest durability. So far as I know, it is the best we can do when the appearance of gold is objectionable. For such cavities, not exposed to heavy stress, I consider it the nearest to an ideal material that has yet been presented.

Dr. Brackett: With reference to fit, Dr. Barrows showed that the restoration or inlay when it is pulled out of the matrix was all ready for setting without any grinding. It fits as if it were fused in the cavity itself. The matrix, being No. 30 or No. 40 gold-foil, provides for about as little cement as could possibly be used. A large restoration may have little grooves ground on the unexposed sides for the sake of giving a better hold to the cement.

Dr. Hamilton: I have been rather interested for a year or two in the attachment of porcelain faces to platinum caps, and in making crowns from porcelain, using a platinum base. I have tried some with this Jenkins body, which seem strong even when the contour was built directly on the surface of the platinum.

In my investigations in that line, I have Mr. Woodman's authority for the statement that the low-fusing bodies will be harder to pull off or flake from platinum than the high-fusing bodies.

Dr. Wilson: In regard to Dr. Hamilton's allusion to baking a thin layer of porcelain over platinum, it is only very lately that I have seen one made in very much the same way. The thin porcelain was gradually becoming loose, and when the patient came to me it was about ready to drop off. Food had accumulated underneath the porcelain, giving it a black and unsightly appearance. This brings up rather an interesting question as to whether a low-fusing body will adhere more closely to platinum than a high-fusing body. In making the tooth over, a high-fusing body was used.

International Dental Journal.

THE TROPHIC FUNCTION OF THE DENTAL PULP.*

By T. E. Constant, M.R.C.S., L.R.C.P., L.D.S. Eng., Scarborough.

The literature upon the subject of the dental pulp is already so extensive that I should hesitate to add to it even the small contribution I purpose to offer, if it were not for the fact that the aspect of the question that I am about to discuss has never, so far as I am able to ascertain, been touched upon by any previous writer.

The absorption of the alveolar ridges which takes place, even in young subjects, after the removal or loss of the teeth is so common a phenomenon that the laity are as familiar with it as ourselves. This "shrinkage of the gums," as it is popularly termed, has hitherto been attributed to the atrophy that almost invariably attends the loss of functional activity—it being assumed that the main function of the alveolar ridge is the support of the teeth. More than once has it been compared to the muscular atrophy that takes place in a limb the movements of which have been lost or impaired—indeed, that is a not unfamiliar dogma of the text-books.

This explanation always appeared to me to be extremely unsatisfactory, for, in view of the many compensatory changes with which we are familiar by which Nature endeavors to repair the loss or damage of other organs, we should rather expect the loss of the teeth to be compensated by hypertrophy of the alveolar ridges than that the function of mastication should be further impaired by their absorption after the teeth have been extracted.

The doubts of my hospital days seemed to be justified when I was engaged some years since in some investigations directed towards the elucidation of the etiology of the dental deformity known as "Anterior Protrusion." I then noted that, in young people, when a back tooth had lost its antagonists, the characteristic elongation which takes place under those circumstances varied in cases in which the pulps of the unopposed teeth were dead from those in which they were living. In the former instance, although the elongation of the teeth took place it was unaccompanied by any downgrowth (or, in the case of a lower tooth, upgrowth) of the alveolar ridge; whereas, in the latter case, there was a corresponding deepening of the alveolar ridge. In other words, in the case of dead teeth there was simply extrusion from

*A paper read before the B. D. A. Meeting at Ipswich, 1899.

the alveolus, but in the case of living there was growth of the alveolar ridge. As I was unable to discover that this observation had been previously recorded, I mentioned the fact in a paper contributed to the *Journal* of this Association in April, 1895. Since that date I have had numberless opportunities of verifying the accuracy of the observation, and to me it seems obvious that the growth of the alveolar process is dependent upon the integrity of the dental pulp and that the wasting of it after removal of the tooth is due rather to the removal of the dental pulp and the local damage that is the result of extraction of the teeth than to the "loss of functional activity," to which it has hitherto been attributed.

These considerations appear to justify the inference that the pulp of a tooth influences in a marked manner the nutrition of that part of the alveolar process in which it is imbedded—or, in other words, that the pulps of the teeth as a whole exercise a trophic influence with regard to the alveolar processes. Taking this for granted, it may not be unprofitable to consider for a moment the probable mechanism of this trophic influence.

Some years ago the student of physiology heard a great deal about trophic nerves—the alleged function of which was to preside over the nutrition of the parts to which they were distributed. Nowadays, however, trophic nerves seem somewhat out of fashion, and physiologists attribute nutritional changes to influences less obscure. Following the same wise course, let us examine whether, without invoking other aid than that of physiological factors which meet with general acceptance, we can satisfactorily account for this trophic influence of the dental pulp. It is the rule for "dead" teeth to be somewhat looser in their sockets than the living teeth in the mouth of the same individual, and this looseness cannot, in the majority of cases, be ascribed to wasting of the sockets, for it becomes apparent before sufficient time has elapsed for any marked atrophy of the alveolar process to have occurred. This looseness, moreover, is increased by causes too trivial to affect in the slightest degree teeth in which the pulps are alive and healthy. Now, there can be no question, I think, but that this is due to an altered condition of the vascular surroundings of the roots of dead teeth. Regarded in the light of this phenomenon, it seems quite evident that extirpation of the pulp of a tooth causes a marked and permanent alteration in the vascular condition of its periodontal membrane—in other words,

a disturbance of vaso-motor equilibrium in the direction of a paralysis of the vaso-constrictor mechanism—a similar change (allowance being made for the difference in the anatomical relations of the parts in question) to that which takes place in the vascular condition of a rabbit's ear after section of the sympathetic. The result, therefore, of extirpation of the dental pulp is to produce a tendency to a passive congestion of the peridental membrane due to the loss of resiliency of its blood-vessels—a condition eminently favorable to blood stasis, and quite sufficient to account for the trophic change that takes place in the surrounding alveolar process.

Should further evidence in support of this view be required, it is only necessary to point to the numerous pathological changes to which the peridental membrane and the surrounding tissues of dead teeth are so constantly liable, to all of which the condition here described is the first step necessary.

The foregoing remarks apply to both the permanent and temporary dentitions; but the pulps of the temporary teeth exercise another kind of trophic influence, which also seems to have escaped the notice of dental writers—I refer to their influence upon the process of resorption of the roots of the temporary teeth. In the case of temporary teeth, in which the pulps are destroyed at the time when resorption of the roots should commence, resorption, strictly so-called, does not occur at all. In such cases, a certain amount of absorption of the root, as a rule, takes place, just as it often does in the case of dead permanent teeth, the microscopic appearance of the roots in both instances being strikingly similar. This absorption is a pathological process and differs markedly from the physiological process of resorption. It is a much slower process, and that is one reason why we so frequently find the apices of the roots of dead temporary teeth protruding from the labial or buccal surfaces of the alveolar ridges, causing that ulceration of the mucous membrane of the cheeks or lips with which we are so familiar in the case of children whose milk teeth have been neglected.

The explanation of this common phenomenon is simple. The death of the pulp of the temporary tooth has left its root incapable of resorption and its socket prone to degeneration. Absorption is too slow a process to make room for the crown of the permanent successor which soon impinges upon the dead root, deflects it, and thrusts its apex through the degenerated alveolar

process and the superjacent soft tissues. In those cases in which death of the pulp of the temporary tooth has taken place some time after the process of resorption has commenced, and the root is, in consequence, shortened, the pressure of the advancing permanent tooth simply tilts the root until it takes a nearly horizontal position, the crown, if any remain, being correspondingly deflected. Other phenomena which admit of a similar explanation are familiar to us all and need not be enumerated. They may, I think, be interpreted in physiological terminology thus: The pulps of both the permanent and temporary teeth exercise, in addition to their well-recognized formative function, an anabolic function with regard to the alveolar processes; and, in the case of the temporary teeth, a katabolic function with regard to the roots themselves.

Admitting this, the importance of the dental pulp in determining the growth and development of the jaws becomes at once evident. From the time when it is "nothing more than a part of the mesoblastic myxomatous tissue of the jaw, which has become more rich in vessels and cells than the other neighboring part" (for this euphonious definition I am indebted to Mr. Tomes*), up to the time when commencing senile degeneration presages the termination of its physiological activity, the dental pulp is one of the busiest exponents of local government observable in the whole domain of human physiology. While it is hard at work constructing the tooth it regulates the blood pressure that causes that organ to travel to its appointed place in the mouth, at the same time building up the bony walls that enable that pressure to act as a mechanical advantage. Then, in the case of the temporary teeth, it superintends the demolition of the very structure it has been at such pains to create; and finally, in the case of the permanent teeth, it controls the nutrition of those parts upon the integrity of which the tooth is dependent for the proper exercise of its function. Thus we are able to understand the otherwise inexplicable phenomenon which Mr. Tomes aptly describes as follows:

"It is impossible to insist too strongly upon the fact that the sockets grow up with, and are moulded around, the teeth as the latter elongate. Teeth do not come down and take possession of sockets more or less ready made and preëxistent, but the socket is subservient to the position of the tooth; wherever

* "Dental Anatomy," p. 129.

the tooth may chance to get to, there its socket will be built up round it. Upon the proper appreciation of this fact depends our whole understanding of the mechanism of teething; the position of the teeth determines that of the sockets, and the form of pre-existent alveolar bone has little or nothing to do with the disposition of the teeth."

It would be a work of supererogation to enumerate the many practical bearings of this interesting subject, but I should like to record my opinion that a very large number of those cases classed under the comprehensive title of "Pyorrhœa Alveolaris," which are usually attributed to the presence of some local irritation, such as the deposit of "tartar," are in reality due to a regeneration of the tooth pulps, and the consequent derangement of their nutritional function.

If it were not for the fact that to do so would be to pass from the region of theory that has a solid substratum of careful observation, it would be profitable to discuss the question as to the exact method in which the pulp, enclosed as it is within the bony walls of the tooth, yet exercises its influence upon outlying structures. If only our microscopists had been able to demonstrate direct nerve connection between the peridental membrane and the so-called "odontoblasts," we should naturally have credited those interesting protoplasmic particles with a vaso-motor function; for, situated as they are at the very periphery of the pulp and in close contact with the dentine, it cannot but be supposed that they must be peculiarly susceptible to even minute variations in the blood pressure. Before we venture so far as this, however, we must first have positive evidence that the odontoblast cells form a part of the sympathetic nervous system.

The Dentist.

DENTISTS AND THEIR INSTRUMENTS.

It would be far from necessary to elaborate upon the question of heat sterilization of instruments used in surgical operations. This is a fact removed so far from controversy that the surgeon who disregards it gradually finds himself relegated to antiquity.

In a certain society three cases of syphilis, having their origin in the dentists's chair, were reported in a single year. This prompted the writer to make inquiry as to the *modus operandi* of the dentist in handling the instruments which he so

frequently applies to parts so susceptible to contagion—the mucous membrane of the mouth.

Let us take four of what one could judiciously term the most careful dentists in Denver, call them Drs. W., X., Y. and Z., and ascertain their methods of preventing infection from one patient to another.

Dr. W., who at once saw the importance of the writer's investigation, conceded the importance of heat sterilization, but did not boil his instruments for three reasons: First, the great inconvenience of the process; second, the character of the handles of some of the instruments, and the fear of rust in some of the fine mechanical workings; third, the danger of infection lies more in the tout ensemble of the dentist's methods than in the simple boiling of instruments. His method was to put all instruments used into a bath of one-fourth per cent. solution of formalin. All suspected cases were either boiled or put in pure carbolic acid.

Dr. X.—Method practically same as W., only instead of formalin, he used a solution of P. D. & Co.'s antiseptic soap. He never sterilizes instruments by boiling.

Dr. Y.—Assistant carefully washes all instruments with solution of formalin and antiseptic soap. Never sterilizes instruments by boiling.

Dr. Z.—Only one found who sterilizes instruments by boiling. When asked whether the above methods of W., X. and Y. would suffice, he answered that he always kept in close touch with the methods of the best surgeons, and thought boiling the instruments was the only sure method of sterilization. He keeps a neat sterilizer in sight of the patient, into which he invariably dropped his instruments after he had used them on the patient in the chair. With him there were no suspected cases, as he treated all alike, acknowledging the utter impossibility of knowing positively whether a person was free from an infectious disease.

The above four dentists represent men who rank highest in their profession. Out of these four, one only sterilizes his instruments by boiling; the other three think their method sufficient to prevent infecting others. What, then, can be the state of affairs going on among the mediocre class of dentists? Further comment upon this subject is unnecessary. We believe there is a dental society here in Colorado. Let us simply say, Dentists, take heed. Here is a subject down to which you will have to buckle.

E. P. H., in Colorado Medical Journal.

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

THE PENNSYLVANIA STATE DENTAL SOCIETY.

The recent annual meeting of this organization proved to be the most successful in its recent history; there was not only a large attendance of the older membership, but a substantial addition of over forty new members was made to its rolls.

This success was due to an increasing realization of the importance of the society to the welfare of the dental profession in the State, to the accessibility and highly attractive character of the location in which the meeting was held, and to the interest attached to the papers, clinics and demonstrations.

The two lantern exhibits, "The Tissues of the Mouth in Embryo," by Prof. I. N. Broomell, and "Some New Points in the Anatomy of the Head," by Prof. M. H. Cryer, were probably the finest ever made before a dental society, and are entitled to special mention, not only for their intrinsic excellence, but for the masterly technique, untiring industry and scientific enthusiasm which alone made possible the production of so large and varied a collection of histological and anatomical specimens.

The clinical demonstration by Dr. N. S. Jenkins, of Dresden, Germany, of his method of making porcelain inlays was in the highest degree interesting and valuable. The excellence of the results produced under his skilful manipulation made a deep impression, and fully confirmed the claims which have been made by others as to his method and material. Dr. Jenkins by his modesty, urbanity and cultured diction as a clinician, secured for himself the admiration and esteem of every member of the society; by which, as a slight recognition of his valuable services, he was made an honorary member.

A notable feature of the daily sessions was the entire ab-

sence of that petty partisanship which has sometimes marred the harmony and seriously limited the usefulness of the organization. "Happy is the land whose annals are blank in history-books"—and the society whose minute-books record no politics.

As the result of recent legislation, the relations of this organization, not only to the dental profession, but to the Commonwealth, have broadened in interest and increased in importance. The present dental law was secured chiefly through the efforts of its Committee on Legislation. Reasonable in its requirements, just in its provisions and effective in its operation, it is unquestionably among the best, if not the best dental law thus far secured in any State.

In the recent session of the State Legislature, a bold and almost successful effort was made to take from the State Society its right of nomination of members of the State Dental Examining Board, and make the appointments practically a prey to the political spoilsman. This scheme was defeated only by the vigilance and strenuous effort of the Committee on Legislation, backed by the influence of every member of the dental profession whose coöperation, at short notice, they were able to secure. At the next session a renewed effort on behalf of the man with a political pull may be looked for. Its success would to a great extent destroy the usefulness of the law, and not only imperil the best interests of the dental professions of the State, but be a serious menace to the cause of dental education throughout the union.

Another fact with relation to the functions of the State Society must also be remembered, namely, that the president of its choice becomes *ex-officio* a member of the Dental Council in which, among other duties, he coöperates with the Superintendent of Public Instruction and the President of the State Board of Health in supervising the examinations held by the State Board of Dental Examiners.

Even of greater importance than the selection of a president, is the nomination of the individual members of the Board of Ex-

aminers above referred to; only a member of the society can become an examiner, and only from among those nominated by the society can appointments to that office be legally made by the Governor of the State.

Thus it will be seen that, apart from the scientific features of the annual gatherings of the State Society, they are of vital significance in their bearings upon the intelligent and impartial execution of the educational provisions of the dental law.

The office of dental examiner is unquestionably the most important and responsible in the dental profession to-day. These responsibilities are not limited simply to the individual candidate for license whose career the examiners may make or mar, but embrace the educational system of which the candidate is the product. To the applicant for license they may work injustice by questions unwisely selected or improperly framed; to the cause of dental education they may be helpful or harmful as they are broadened by scholarship or narrowed by ignorance, prejudice or incapacity.

Examining boards are, in a sense, the court of last resort, and it will be found that schools must and will adjust their instruction to their requirements, whether they make for progress and liberal culture or for retrogression and scholastic narrowness.

What the boards examine on the student eagerly learns; what they do not examine on they do not want to know. If boards do not ask questions in general anatomy, other than of the mouth, they may escape the criticism that their questions have no "practical" relation to dentistry, but they at the same time limit the student's desire to secure, and the teacher's power to impart a broad knowledge of the general anatomy of the entire human organism; and as in anatomy, so in physiology, pathology, chemistry and materia-medica.

Certainly courses of instructions forced into too narrow a specialization by such influences will not meet the full requirements of a training in dentistry regarded as a special branch of the general science of medicine. If the integrity of a structure

is to be determined, the foundation stones should be examined as well as the superstructure.

The power and influence of examining boards being then so great, the importance of selecting with scrupulous care nominees for appointment is clearly manifest. Probity, scholarship, devotion to duty, love for their profession, and an unselfish desire for its advancement should characterize the incumbents of the office. Such men once found should not lightly be cast aside on petty pretexts, and least of all at the behest of petty partisan politics; because, given all the qualities of head and heart which go to make the good examiner, it is a trade which is not to be learned in a day or in a year.

The Pennsylvania State Dental Society has thus far been judicious in the selection of nominees for this office. No one has dared to call in question the absolute integrity of their examinations; which for clearness, scope and general excellence need not fear comparison with those of any other State in the Union.

It is hoped and believed that the dental profession of the State will reorganize the self-sacrificing services of the State examiners, and give them loyal support in the manner in which that support can best be made practically effective, that is in, and as members of, the State Dental Society.

The next annual meeting will be held at the same place as this year, the Neversink Mountain Hotel, near Reading, one of the most beautiful locations in America, surrounded on every hand by far-reaching vistas of hill and vale and stream. To a spot so attractive, and for purposes so important, there should next year be a memorable outpouring of the dentists of the State.

If the cause of dental education is to be upheld and advanced; if the laws regulating dental practice are to be enforced; if ethical standards are to be maintained, it is chiefly through the State Society that it must be done. By every reputable practitioner be it remembered that to do these things the society needs membership; it needs personal work and personal influence; it needs YOU.

Reviews.

THE PRACTICE OF DENTAL MEDICINE. By George F. Eames, M.D., D.D.S., Professor of Pathology and Therapeutics in Boston Dental College; Member of the Massachusetts Medical Society, and of the American Medical Association; Ex-President of the Massachusetts Dental Society; Member of the American Academy of Dental Science; Honorary Member of the Maine Dental Society, etc. Containing thirty-eight engravings and three colored plates. Published in America by the S. S. White Dental Manufacturing Co., Philadelphia, Pa., and in England by Claudius Ash & Sons, Limited, London.

In this work the author has not confined himself within the limits which would be imposed by a strict interpretation of the term dental medicine, as is clearly shown by the inclusive character of the following table of contents:

CONTENTS.

General Considerations in Pathology; The Inflammatory Process in General; Syncope; Hysteria; Neuralgia; Consideration of Subjects Involved in the Administration of Anæsthetic Agents; Menstruation; Pregnancy; Hemorrhage; Constipation; Swallowing Plates and Other Foreign Bodies; Stomatitis; Diphtheria; Scurvy; Rhachitis; Scrofula; Chancroid, or Soft Chancre; Syphilis; Rheumatism; Dyspepsia; Tetanus; Gingivitis; Pyorrhea Alveolaris; Phagedenic Pericementitis; Difficult Dentition; Salivary Fistula; Salivation; Ranula; Dental Caries; Hypersensitive Dentin; Hyperemia of the Dental Pulp; Acute Pulpitis; Chronic Pulpitis; Suppuration and Abscess of the Dental Pulp; Pericementitis; Dento-Alveolar Abscess; Dental Erosion; Abrasion; Hypercementosis; Secondary Dentin; Pulp Nodules; Necrosis; Ankylosis of the Jaw; Empyema and Other Pathological Conditions of the Maxillary Sinus; Hypertrophy of Adenoid Tissue in the Post-Nasal Space; The Relation of Adenoid Vegetations to Irregularities of the Teeth and Associate Parts.

It is, of course, self evident that when so wide a range of pathological conditions, the consideration of any one of which might be amplified into a treatise, is traversed in a volume of less than two hundred and fifty pages, conciseness, at least, is indispensable.

The one thing more difficult than writing a treatise is not

to write one yet still present the essential facts of a subject, and in this latest addition to the literature of dental medicine the author has shown himself well fitted for the task of giving, with discriminating brevity, information which, in a great majority of instances, is ample for guidance in the exigencies of actual everyday, dental practice.

Medicine, however, is so imperfect an art that in a work of this character it is impossible to maintain harmony with all the conflicting views of its practitioners; thus, personally, we are very skeptical as to the claim that gallic acid, which the author recommends systemically to promote the coagulability of the blood in hemorrhage, has, or can have, any such chemical influence. A great majority of people in their usual table beverages, such as tea, coffee, beer, red wine, etc., are daily taking large amounts of tannic acid, which must be changed into gallic acid either before or after absorption into the circulation, and are taking it without any appreciable influence upon the coagulability of the blood; hence it does not seem reasonable to assume that a few additional grains can have such a chemical effect simply because they are given as a remedy in cinnamon water.

For the moral effects of such a prescription from a trusted physician there are infinite possibilities; for to the terrorized mind and paralyzed vaso-motors and fear-driven heart the calmness which comes of faith and trust is often the most sovereign of remedies. It may, of course, be said that experience justifies the use of gallic acid, that thousands of bleeding subjects have taken it and lived; but how many myriads more are there who without it have not died. As Dr. Holmes sapiently remarks, "Experience is a solemn fowl which cackles oftener than she lays sound eggs," and, after all, hemorrhage, unless it involves the larger blood-vessels, is, in a great majority of cases, self-limited, as the heart grows weaker the clot grows firmer, and so coagulant or no coagulant, the bleeding ends.

These remarks are simply the expression of an individual opinion, and are not intended as a criticism upon the author for suggesting gallic acid as a remedy; it is old and "standard," and writers must be regardful of the "deference due" to a pedigree so respectable.

Eighteen pages of the work are devoted to anæsthetic agents and their administration, both for systemic and local effect. The space is, of course, limited, but the subject is traversed with

reasonable fullness, with accuracy of statement and soundness of teaching. Exception may be taken to the term "primary anæsthesia" as applied to that diminution of common sensibility which is sometimes produced by the first inhalation of an anæsthetic agent, especially chloroform, when given, as it should be, at first, slowly and cautiously. It is probably more a condition of sensory bewilderment than of true anæsthesia, and one in which the sense of pain is obscured or confused only for the most trivial operations.

The questionable character of the term simply from the etymological standpoint is very well shown when the author states that "In many instances it is quite impossible to produce primary anæsthesia," which is quite equivalent to saying that in such cases all anæsthesia is impossible, for if induced at all, anæsthesia must have a first, or primary, stage, whether it occurs in the first or the fourth or fifth minute of inhalation. Possibly a better term than primary would be peripheral anæsthesia.

As regards the propriety of operations in this early anæsthetic stage, a safe generalization is this, that the more nearly complete is anæsthesia, without its full induction, the more dangerous become surgical shock through still sensitized nerves upon a weakened heart.

The treatment recommended by the author in cases where foreign bodies, such as partial artificial dentures, have been swallowed and have passed into the stomach is "to feed the person upon large quantities of boiled rice or other similar material; the object being to distend not only the stomach but the entire intestinal canal." Here, however, an important detail has been omitted, namely, the patient's entire abstinence from water or other fluids, without which the treatment is comparatively ineffective, for the reason that water greatly hastens the change of insoluble starchy matter into soluble dextrin, which after undergoing the ordinary digestive process, is rendered ineffective mechanically, either to distend the intestines or, what is much more important, by adhesion to form around the foreign body a deposit protective of the intestinal wall. This latter result is one of the most valuable features of the method; hence, the greater adhesiveness of the starchy matter of boiled potatoes gives that vegetable a superiority over boiled rice as an exclusive diet in the cases in question.

The preparation of a work so comprehensive and involving

so much research has been no easy task. While the assurance of having worthily accomplished a worthy work is to the true votary of science his best and highest reward, he does not the less appreciate, or the less deserve, the recognition and support of those whom the work is designed to benefit, a fact which in this special instance should be remembered, and not tardily or grudgingly, by all practitioners and students in dentistry.

The imprint of the S. S. White Dental Manufacturing Co. is a sufficient guarantee of the typographical excellence of the book, while a liberal number of engravings and four full-page colored plates add to its interest and value.

THE HYGIENE OF THE MOUTH. A Guide to the Prevention and Control of Dental Diseases, by R. Denison Pedley, F.R.C.S., Ed., L.D.S. Eng.; Dental Surgeon to the Evalina Hospital for Sick Children, Southwark, London. With numerous illustrations. Published in London by J. P. Segg & Co., 289 and 291 Regent street, W. In America by the S. S. White Dental Manufacturing Co., Chestnut street, Philadelphia, Pa.

In view of the rapidly increasing interest taken by all intelligent persons in the hygiene of the mouth and care of the teeth, especially of the young, this is an exceedingly timely work. It is divided into two parts, "The Hygiene of the Mouth in Children" and "The Hygiene of the Mouth in Adults."

The chief charm of this book is its straightforwardness and saving common sense, and the absence of rhetoric, platitude or gush. The author knows how to begin and, rare virtue, when to stop.

In a few words, as little technical as possible, he explains the causes of dental caries, and shows that cleanliness is the chief preventive agency, a cleanliness to be secured not by that perfunctory scrub before breakfast which, more or less, imperfectly removes the food accumulations of the previous twenty-four hours, but cleanliness which after each meal removes, and removes thoroughly, from around the teeth the organic débris on which bacteria batten. For the effective accomplishment of this end our author well says that "A tooth-brush drill is as necessary as any gymnastic exercise."

The evil results of feeding children at irregular hours, usually for no more sane purpose than to gratify their whims or keep them quiet, are well explained; as are also the injurious consequences, direct or indirect, which follow the too exclusive use of

food substances requiring little or no mastication. The secondary effects of dental caries, such as reflex neuroses, stomatitis, indigestion, intestinal disorders, etc., are also duly considered.

For adults the author urges not lessened but increased attention to cleanliness by the use of the brush, the quill tooth-pick and thread or tape. Numerous illustrations show in a graphic way the ravages of caries and the resultant effects in associative diseases, malocclusion and edentulousness.

Many of these illustrations of dental wreckage and disaster are exceedingly well selected, and tell their story in a most impressive and convincing way; it is to be regretted, however, that as a rule the mechanical execution of the cuts is so far inferior to their merit as object lessons in dental pathology.

The wood-cut on page 68, intended to represent an entire denture in occlusion, is especially crude, and for his own peace of mind it is to be hoped that the artist who hewed it shares the illusion which, in common with the admirers of a certain statesman not famous for his beauty, has been ascribed to the heathen hewer of the wooden god, "He knows that it is ugly, but feels that it is great."

Such minor blemishes, however, do not lessen the merit of a work so worthy of commendation, and which placed in the hands of parents, teachers and the public at large, as we trust it may be, cannot fail to be an efficient agency for good.

CHEMISTRY AND METALLURGY APPLIED TO DENTISTRY. A manual of practical Chemistry and Metallurgy for the Dental Student and for the Dentist. By Vernon J. Hall, Ph.D., Professor of Chemistry and Director of the Chemical Laboratories in the Dental School and in the Woman's Medical School of Northwestern University. Price \$2.00. The Technical Press, Publishers, Evanston, Illinois.

This book is apparently based upon the author's method of teaching chemistry to dental students; but on examination the title is found to be somewhat misleading, for instead of being inclusive of all chemistry having a bearing upon, or application to, dentistry, the work is really almost exclusively limited to the chemistry of metallurgical processes, some of which are and some are not, strictly speaking, dental in the sense of practical applicability to ordinary dental office or laboratory work. With one or two exceptions the only sections not metallurgical are those devoted to urinary, salivary and tooth analysis. Among

the elements iodine is not mentioned and "laughing gas," which surely is "applied to dentistry," is dismissed in three lines.

To justly estimate the sufficiency or insufficiency of the author's system of instruction in chemistry as here revealed, it would be necessary to be fully informed as to what other avenues of chemical knowledge are open to his dental students in their general curriculum. It must, of course, be assumed that the knowledge of the chemistry of nitrous acid gas they would be expected to master is not confined to that contained in the three lines above referred to. Their courses of instruction must embrace also something of the chemistry of antiseptics both organic and inorganic, which to-day are "applied to dentistry" in a far fuller sense, and which have a much more practical bearing upon dentistry, and are of far greater importance to the individual dentist than are refining or other chemical processes connected with metals.

This was not always the case, but the times have changed, and we have changed with them, and as a matter of fact the average dentist of to-day rarely makes his own amalgams and cements, and as rarely attempts refining processes, except perhaps, by the crude crucible methods incident to smelting. This is an age of specialization, and as a rule, even those dentists who may be regarded as experts in the theory of metallurgy, find it a waste of time, energy and money to do what the United States Mint or private refiners will do for them, and considering lost time and lost material, do it better and at less cost.

This is not said to belittle the importance of metallurgy. If knowledge of all kinds were strictly limited to what is directly applied in the routine work of every-day life, courses of instruction would be meagre indeed. Dentists are constantly dealing with metals—to a very important degree they are their working tools. To use them effectively they must know them, and to know them they must know chemistry.

In pursuing the course of instruction as laid down in this book, the student does this: he masters principles as well as facts. He may not often need to apply many of the facts, but they are in his mental storehouse, a little rusty, perhaps, from disuse, but still ready to his hand in case of need.

In a volume of this character it would be unreasonable to expect that fullness of detail regarding technical processes which would be looked for in a treatise; but some surprise may fairly

be expressed that the only crucible method given for refining gold is heat aided by saltpeter, with more heat and more saltpeter should the ingot prove refractory. There is no allusion to the mercuric chlorid method for eliminating tin and other impurities, a method which is simple and effective, and was formerly in constant use in dental laboratories.

For the aqua regia method of refining gold, the author directs that scraps and filings shall be placed together in the mixed acids. A much better process, and the one usually followed by practical refiners, is to first melt the scraps and filings; either granulate or roll them into thin plate; cut into strips, and then apply the solvent. By the first method full solution is much retarded, and also rendered much more difficult, by the fact that as silver chlorid forms, it is not only deposited upon the scraps, but is clotted among the filings, necessitating the repeated use of ammonium hydroxid to remove it in order that the action of the aqua regia may be renewed.

If, on the contrary, the alloy has been reduced to a homogeneous mass by fusion, and is in the form of thin strips, the silver chlorid can readily be detached simply by actively stirring the strips in the solvent with a glass rod, the silver chlorid falls to the bottom of the flask and the solution of the gold continues without the use of ammonium hydroxid.

The formulas for plate and solders of gold and silver usually found in text-books are here reproduced. Why do all writers upon dental metallurgy fail to give a formula for the 22-carat gold plate now so largely used in crown- and bridge-work? The only one given here, or in any recent text-book, contains platinum, which impairs color and lessens flexibility, both undesirable results for that class of work.

The chapters devoted to Dental Amalgams, Amalgam Alloys and Dental Cements are among the most interesting and valuable in the book. In addition to his own considerable original experimentation, the author has availed himself of the researches of Black and others with judicious discrimination.

To the dental student the book has a special value, for it presents in compact form and with scholarly lucidity a system of instruction which goes far towards meeting the general requirements of the branch of study of which it treats.

The publishers are to be congratulated upon the tasteful and attractive appearance of the volume; it is printed upon unusually substantial paper, and typographically is thoroughly admirable.

WHAT BECAME OF THE DAUPHIN LOUIS XVII? A study in dental jurisprudence by Eugene T. Talbot, M.D., D.D.S.

This interesting brochure is devoted to a revision of the anatomical evidences furnished by the skeleton discovered in 1846 in St. Margaret's Cemetery, enclosed in a casket on which was graven "L. XVII," and which, for that reason, was claimed to be the skeleton of the Dauphin.

At the official examination the epiphyses of the humerus, femur and tibia, and also the cranial sutures, gave every evidence that the subject had at least passed the age of fourteen years, a conclusion more than sustained by the advanced dentition of the subject; all the permanent teeth were in place with the exception of the left lower sixth-year molar, which had been extracted several years before death, as evidenced by the full obliteration of its socket. The wisdom teeth were non-erupted, but their evolution was so nearly complete that the crowns were evidently just ready to appear through the gums. These facts, together with others equally conclusive, convinced Magitot that the skull belonged to a subject at least eighteen years of age. As the Dauphin, at the time of his reported death, was a child of only eleven years, the skeleton evidently could not have been his, unless his death really occurred several years later than the date to which it is historically accredited.

Our author supports the claim that Simon, the Dauphin's gaoler, "although publicly, ostentatiously brutal," was secretly much attached to him, as was also Simon's wife; that they connived at the Dauphin's escape, and that it was not the Dauphin's body, but a substituted one on which the autopsy was held by the revolutionary Committee of Public Safety in June, 1795.

"What became of the Dauphin?" is a question which Dr. Talbot does not attempt to definitely solve; he, however, considers that the claim of Eleazar Williams, the so-called American Dauphin, has been disproved, and favors the view that the self-styled "Baron" Richemont was the Dauphin *en personne*.

COSMOS AND EVOLUTION. By W. C. Barrett, M.D., D.D.S.

This stenographic report of a lecture delivered to college students is an exposition in popular style of the leading facts upon which the evolutionary theory of man's origin and development is based. Dr. Barrett's convictions are always positive, are generally expressed with force and clearness and often with eloquence; but concerning the great problems of

man's genesis and destiny; and of that universe of which he is so infinitesimal a part, our author, like all of human kind, can only stand wondering, questioning before a sphynx whose lips are moveless and whose unanswering face no scrutiny and no appeal can stir from its eternal calm.

THE ETHNOLOGY OF THE TEETH. By Alton H. Thompson, D.D.S., Topeka, Kan.

This interesting monograph is devoted to a study of racial variations in tooth forms. The subject is one of acknowledged difficulty, and, like the science of anthropology as a whole, is clouded with obscurity and doubt.

As by tribal dispersions races have been so modified as to obscure all traces of a common origin, so by fusion the characteristics of alien races have been merged into a more or less homogeneous type. These are processes which have been and are still in operation in modifying racial characteristics, and what is true of the general physical organism is, of course, true of the teeth.

Professor Thompson claims, however, that in the dental organs of prehistoric, as well as of existing races, there are peculiarities of form and structure which have an ethnic significance and which, in the interests of science, should be studied and recorded.

For this special work, as he justly claims, no class of observers are nearly so well equipped as are dentists. Their constant study and close and minute observation of the teeth peculiarly fit them for recognizing distinctions which would entirely escape the attention of those lacking their special training.

In this paper Professor Thompson does not attempt more than a tentative and general survey of the subject, preliminary to the more elaborate consideration, which he hopes may become possible; but the brief analyses which he gives of human dentition as found in Paleolithic man and in existing races are both interesting and valuable, and work which he has so well begun no one is better fitted than himself to continue.

OBITUARY.

DR. J. M. PORTER.

Died May 7th, 1899, at Denver, Colorado.

The Colorado College of Dental Surgery, recognizing the great services rendered by Dr. Porter in the advancement of

dental science, has adopted and ordered sent to the relatives and dental journals, and spread upon its minutes, the following:

Dr. Porter was born in Masselon, Ohio, in the year 1849. He graduated at the Ohio College of Dental Surgery in 1872. In 1880 he came to Denver, Colorado. He has always been an active, conscientious worker for the advancement and elevation of his chosen profession.

He has at various times been connected with educational institutions and examining boards, occupying positions of trust and discharging his duties efficiently and conscientiously.

At the time of his death he was an active teacher in the Colorado College of Dental Surgery, and his genial countenance and cheering words will long be remembered by the many students who loved and honored him.

He was a member of the Colorado State Dental Association and the Denver Dental Society, the latter society having charge of the burial services. The dental profession has lost one of its most loyal supporters and earnest workers. The esteem and good will of the profession was evinced by the elaborate floral decorations and the large attendance at the funeral.

The dental profession recognizes its loss, and keenly sympathizes with the bereaved relatives and friends.

A. L. Whitney, Secretary.

COLLEGE COMMENCEMENTS.

The fifty-fifth annual commencement of the University of Michigan was held Thursday, June 22d, 1899.

COLLEGE OF DENTAL SURGERY.

Doctors of Dental Surgery.—Hilen Duane Aldrich, William John Allan, Arthur Albert Baker, Victor Emmet Bedford, Helmuth Philip Binzel, Francis Laurance Busch, Will Chauncey Butler, Joseph McGugan Cartwright, Frank Popham Cattermole, Carroll Flood Chase, Gilbert A. Cotton, Loran Scott Fleming, George Matthew Freeman, John Edwin Gilbert, Henry William Harvey, Claude Elton Hathaway, Perry Franklin Hines, Stanley A. Horning, Richard John Huyck, Carl Augustus Leonard Johnson, Herbert Charles King, Wilfred Douglas Kirk, Jay William Kline, William George Law, Jesse Levy, Charles Livingston McKinnis, David C. Martin, Sidney Martin, George Henry Mengel, Claire Greene Meseroll, Charles Jeremiah Miller,

John Miller, Edgar Emil Nelson, Fred Clifton Orvis, Harry Chantler Orvis, Charles Mason Owen, Sidney Dale Peters, William John Polglase, Francis Edwin Renkenberger, Ray Donald Robinson, Erwin Albert Salisbury, Earl Winfield Sanford, Edmund Harold Shannon, Harry William Sheldon, John Floyd Sortore, Flora Mae Spore, Rene Melvin Squier, Clifford Finley Stipp, Harrison Arthur Stites, A.M., Hillsdale Cottage; Philip Ralston Thomas, Archibald C. Thompson, Loren Starritt Treat, Edward Norman Treholme, Fred Marcus Washburn, Benjamin Warren Wells, Chauncey Clifton Westcott, Frank DeWitt Wilson, Charles Augustus Wise, Alvin Oleon Wright.

Doctors of Dental Science.—James Roy Davis, D.D.S., Oliver Wilson White, D.D.S.

ANNOUNCEMENTS.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

The ninth annual meeting of the American Electro-Therapeutic Association will be held in Washington, D. C., on September 19th, 20th and 21st, 1899, under the Presidency of Dr. F. B. Bishop, of Washington.

Quite a number of papers of great scientific value have been promised and the Committee of Arrangements insures the members a very entertaining and pleasurable meeting. Aside from the sessions of the Association, the committee has completed arrangements for a trip to Mt. Vernon, one to Arlington and several other social features.

The headquarters of the Association will be at Willard's Hotel, where special rates will be given to members and their families during the meeting.

COLORADO STATE DENTAL ASSOCIATION.—At the thirteenth annual meeting of the Colorado State Dental Association, held in Denver, June 13th, 14th, 15th, 1899, the following officers were elected: President, A. C. Watson, Denver; First Vice-President, J. N. Chipley, Pueblo; Second Vice-President, Mary A. Bradner, Denver; Corresponding Secretary, Florence S. Green, Denver; Recording Secretary, L. S. Gilbert, Denver; Treasurer, William Smedley, Denver.

*Florence S. Green, Corresponding Secretary,
207 Mack Block, Denver, Colorado.*

RECENT PATENTS RELATING TO DENTISTRY.

- 628185, Finger tooth brush, Charles W. Richards, San Francisco.
 626779, Artificial teeth, Wm. H. Baird, Burlington, Iowa.
 626810, Fountain spittoon, Walter A. Inglehart, Toronto, Canada.
 626737, Dental appliance, Chester J. Underwood, assignor of one-half to G. Sheppard, Elgin, Ill.
 626738, Tooth crown, Chester J. Underwood, assignor of one-half to G. Sheppard, Elgin, Ill.
 31028, Design, Tooth brush and powder rack, David L. and C. Walmsley, Detroit, Mich.
 627720, Artificial tooth, Leonard F. Dunn, Oneida, N. Y.
 627617, Dental spittoon, Frank Hurlbut, Chicago, Ill.
 628244, Adjustable dental chair, Gustav Holtz, Jamesburg, N. J.
 628345, Artificial tooth, Henry J. Miller, Paris, France.
 628185, Finger tooth brush, Charles W. Richards, San Francisco, Cal.

TRADE-MARKS.

- 33062, Dental molding compounds, John C. Graft and W. Rodemann, Newark, N. J.
 33096, Mouth wash, James E. Blauvelt, Nyack, N. Y.
 33148, Liquid antiseptic, Allen Ainslie, New York, N. Y.
 33157, Toilet powder for the skin and teeth, Jacob Diner, New York, N. Y.
 33155, Soap in liquid form, dentifrices, and hair tonic and dandruff cure, Harry C. Richmond, Lima, Ohio.

Questions and Answers.*

Question 49. *When is milk of magnesia especially called for as a mouth wash? Whose preparation is the best? Main properties and virtues? When and for what purpose should it be given internally?*

The milk of magnesia is especially indicated as a mouth wash in mouths of excessive acid reaction, where erosion is present or teeth are wearing away rapidly from abrasion.

Phillips' Milk of Magnesia is conceded as the best preparation of its kind on the market at the present time.

*Address all questions for this Department to its editor, Dr. Henry Beers Hickman, No. 719 N. 17th Street, Philadelphia, Pa.

It is a powerful alkaline solution of magnesium hydrate of a creamy consistency, and when the mouth is rinsed with it there remains a thin film of magnesium hydrate covering the teeth, which is sufficiently adherent to protect the teeth from the acid action of the saliva for several hours. On retiring and rising are the best times to use this preparation as a mouth wash.

Internally it is given in all cases of indigestion, especially in cases of colic in children and in acid diarrhœa; also as a mild laxative, when followed by lemon juice or some other mild acid.

Question 50. *Is there any local anæsthetic that is generally conceded to be better or safer than Dr. Hoff's formula?*

Dr. Hoff's formula, cocain $\frac{1}{2}$ grain, morphine sulphate $\frac{1}{4}$ grain, and atropine sulphate 1-200 grain, made into tablets No. 81, has given satisfaction in most cases. Even with this preparation it is a good plan to dissolve the tablets in alcohol or listerine, but be most careful to use always a perfectly sterilized needle, then danger is nine-tenths removed. *Dr. Jackson.*

Question 51. *What is the treatment for sore mouth caused by a rubber denture?*

See that the denture fits properly, but first give the mucous membrane a rest, and use a 25 per cent. solution of phenol-sodique as a mouth wash several times daily. If the denture fits properly, see that the patient keeps it clean and leaves it out of the mouth at night if possible. If the mouth continues sore touch the ulcer with nitrate of silver. There are some mouths that will not tolerate a vulcanite denture, on account of the non-conductivity, for such cases a gold plate, with cleanliness, is the best remedy. *Dr. H. Nosebrah.*

Question 52. *Is it good practice to build a gold filling on an amalgam foundation in a tooth?*

Yes; and in certain cases it will preserve the tooth better than an all-gold filling, especially if the tooth walls are weak, but cement is preferable when it can be used. *Dr. Jaynson.*

Yes; and in a good many cases an all-amalgam filling is the best, except in an anterior tooth. *Dr. H. Nosebrah.*

In molars, where the cavity extends well under the gingiva, this practice is highly recommended, finishing with gold at the second sitting the portion of the filling that is exposed.

Dr. Jackson.

Question 53. *Will a gutta-percha filling, put in under pressure like a gold filling, resist wear under mastication better than gutta-percha as it is generally used?*

Gutta-percha, as well as amalgam, manipulated according to Dr. Bonwill's method, packing it with pluggers by hand, will wear for a longer time and preserve the tooth better than any other known method.

Dr. H. Nosebrah.

It would pay any dentist to call on Dr. Bonwill and see him demonstrate his method of packing gutta-percha.

Question 54. *Would you advise a young dentist to have his instruments silver-plated?*

No. A nickel-plated instrument is more serviceable and more easily kept bright than a silver-plated one.

Dr. H. Nosebrah.

No. It is a waste of time and labor to keep them clean.

Dr. Wycoff.

No. Nickel-plate is preferable and gold-plate for your pluggers.

Dr. Jackson.

Question 55. *Is there any other solution than sulphuric acid that can be used to clean metal plates?*

A mixture of alum and potassium in water, when boiling, answers the purpose very well.

Practical Points.*

Prophylaxis.—Pits and grooves showing interruption of development of the enamel, when ground out and polished, make them easier of cleaning and beautifies the teeth.

A. C. Hart, Items of Interest.

Treatment of Socket After Extraction of Abscessed Teeth.—For the past twelve years I do not believe I have extracted a single abscessed tooth or root but that I have wiped out the socket thoroughly with concentrated carbolic acid, both in acute and chronic abscesses, not merely as a pain reliever, but because it thoroughly breaks up the sac, if any, or the remaining portions of it, and by its stimulating effect rapidly assists the healing process. The anodyne and anæsthetic effect is almost instantaneous.

C. P. Hubley, Items of Interest.

* Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Jumping Solder.—In placing foil scraps in a crack where you wish to span solder use scrap mat gold. It will stay where put and not ball, but make a satisfactory joint.

Dr. Prescott Niles, Ohio Dental Journal.

Root-canal Filling for Deciduous Teeth.—The material selected should be such that if absorption occurs the filling will not interfere. In preference to all others melted paraffin and balsam-of-the-desert, iodoform and glycerin, or iodoform and oil of cloves.

D. H. Ziegler, Ohio Dental Journal.

Painless Pulp Extirpation.—I have been using the hydrochlorate of cocain and sulphuric acid—saturated solution. The broken-down pulp tissue, resulting from the pricking of the sulphuric acid and cocain into its substance, is reduced by sodium-potassium into a soapy material, which is readily removed from the pulp chamber and root-canals. The action of the sulphuric acid seems to devitalize the tissue immediately and allows a forward progress continuously until all the pulp is broken down into fine threads.

John I. Hart, Cosmos.

Prevention of Irregularities.—The proper thing to do is to start far enough back to prevent irregularities. As soon as the first permanent molars and the permanent central incisors are in place every effort should be directed toward keeping them in their proper places. To this end the intervening deciduous teeth should be kept in their respective places until nature removes them to make room for their successors. Watch them; fill them if necessary, but do not allow them to be removed prematurely. If this is done there will be, as a rule, no irregularities in the permanent teeth.

Geo. B. Clement.

Rubber-dam Lining for Vulcanite Plates.—When ready for packing first pack around pins and flange. Then cut a piece of red rubber, size and shape of cast and large enough to come up as high as will be required when finished. Cut a piece of new, clean, thin rubber-dam to fit the red rubber. Paint the latter all over one side with good rubber cement, apply the rubber-dam and press down smoothly, making sure there are no air bubbles. Place in flask with dam next to cast. Close the case by dry heat. Use paper vacuum form, as the dam will not harden over tin. Makes a very tough plate almost impossible to break and permits a very thin light piece of work.

L. Crouther, American Journal.

Cleansing the Mouth.—Cakes of magnesia saturated with pyrozone, 3 per cent., form excellent cleansers for the mouth, night and morning use, and are particularly well-adapted to control the irritating effects of acid mucus upon the cervical margins of the teeth.

J. F. P. Hodson, Dental Cosmos.

To Make a Solution of a Given Percentage.—The weight of a fluid ounce of distilled water at 60 degrees F. being 455.7 grains, multiply 455.7 by the percentage of the solution required. The result will be the number of grains to the fluid ounce. For instance, if a 4 per cent. solution is required, $455.7 \times .04 = 18.22$, or approximately $18\frac{1}{2}$ grains to the fluid ounce. This rule applies only to solutions in water.

Treatment of Root-canals.—Dr. Bethel's method of lining root-canals with silver nitrate, by means of the electric current, renders them, no matter what the condition of the canal may be, absolutely and permanently sterile and aseptic. To avoid discoloration protect the walls of the cavity with a coating of paraffin and follow the silver nitrate with an application of iodine with the current, this to be followed by ammonia.

J. M. Fogg, Dental Cosmos.

Empiricism.—Whether we will or no, with all our science we are still, and always will be, empirics. What we believed was scientific yesterday, and in our pride followed because it was scientific and successful, to-day we find was empiricism, because we have gone just a step further; but we continue to follow the method because it brings good results. * * * Let us seek all the scientific light we may, yet forget not that some methods, the working of which we do not understand, may be helpful to humanity.

F. Milton Smith, International Dental Journal.

Conservative Methods in Antrum Treatment.—The opening through a root-canal is often sufficiently large for treatment and drainage of the antrum. In a case in which the second molar was involved the buccal roots were cleaned and filled. A platinum cylinder was cemented into the palatine root-canal, the pulp chamber and cavity being filled with amalgam around the cylinder. The diseased antrum was successfully treated by injections through the cylinder in the root-canal, and a cure effected in two weeks, the treatment having been kept up by the patient at home.

J. P. Corley.

Toxic Effects of Mercury in Amalgam Fillings.—I have not made any experiments at all upon the toxic effects of mercury in amalgam fillings, perhaps because most of the patients for whom I have had the honor of operating have not during my time been subjected to a dull red heat, which is about the temperature required to produce either of the two poisonous salts of mercury.

E. A. Bogue, Items of Interest.

Filling Cavities in Deciduous Teeth.—When the timidity or nervousness of the little patient—or extreme sensitiveness of the tooth—prevents thorough preparation, the use of a solution of alcohol, resin, and silver nitrate will prove of great value. Dry the cavity; flood with carbolic acid or oil of cloves, place the above solution on a pellet of asbestos felt, over the soft decay, and fill over this with cement, or, if the cavity will retain it, with gutta-percha. It reduces the painfulness of preparation and filling to the minimum, and results are all that could be desired.

F. J. Woodworth, Cosmos.

Cement and Amalgam.—As cement does not discolor, does not shrink or expand, and does not flow or spread under pressure, all of which constitute serious objections to amalgam, yet as cement does not resist the oral secretions when exposed to their action, an advantage possessed by amalgam, the ideal filling would seem to be one of which two-thirds is cement, with a veneer of amalgam. Dryness being an important consideration, cleanse the cavity with peroxid of hydrogen and alcohol, which puts it in good condition to receive the cement.

G. L. Ambrose, Western Den. Jour.

Painless Pulp Extirpation.—

R. Formalin 1 part.
Absolute alcohol..... 5 parts.

Pulverize a few crystals of cocain; saturate the smallest pellet of spunk or cotton with the above solution and gather upon it a little of the powdered cocain. Apply directly to the pulp, and after carefully filling the cavity with unvulcanized rubber produce a gentle and continuous pressure with a ball-burnisher, increasing the force as absence of pain indicates progress of the obtunding influence. Keep this up for several minutes, when the pulp chamber can be thoroughly opened and the pulp removed, generally absolutely without pain. The smallest quantity that can be handled is sufficient.

O. L. Hertig, Items of Interest.

Temporary Stopping for Deciduous Teeth.—Fletcher's carbolyzed resin is one of the best preparations for the deciduous teeth. It acts as an anodyne, and will withstand mastication for several days. Mixed with zinc oxid it hardens under moisture, and will last for several weeks. *D. H. Ziegler, Ohio Dental Journal.*

Diamond Burs.—Soft iron burs of various sizes, well charged with diamond dust, cut rapidly and smoothly when kept wet with water of the right temperature, and require only a light touch to do the work. Nervous patients can easily bear a diamond bur in places where the use of an ordinary bur would be impossible. *N. I. Jenkins, Dental Cosmos.*

The Clean Teeth that Never Decay.—This can only be attained by frequent friction and vigorous polishing of all crown surfaces. This is best effected with a stick—as orange wood—and a suitable grit—as fine pumice. This insures removal of all injurious matter from the surfaces, compels change of environment, stimulates a healthful circulation within the tooth, inducing the deposit of vitally organized, decay-resisting matter for enamel and dentine. Stimulation of pulp tissue, resulting in improved tooth structure is a noticeable and most beneficial result of this process. Orange wood, levigated pumice, and a slightly modified "Jack" porte-polisher would meet all requirements for placing the teeth in the best possible condition for resisting decay. *D. D. Smith, International Dental Journal.*

Pulp Capping and Amalgam Filling.—With a healthy, exposed pulp wash the cavity several times with warm water, and sterilize with some antiseptic solution. Dry thoroughly with warm air, flood with oil of cloves, dry again and apply several coats of chloro-balsam. Should there be an exudation from the surface of the pulp, the slightest amount of carbolic acid in the cotton with which the varnish is applied will prevent it. A small piece of blotting paper is cut to suit the case, upon which a small quantity of pure Canada balsam is placed; this is laid lightly over the exposed pulp, the balsam in contact with the pulp and surrounding dentin; a concave disk of German silver is then filled with cement—Harvard preferably, as being very sticky—and passed to place. Allow time for this to harden; line cavity with cement, and fill with amalgam.

F. W. Proseus, Dental Cosmos.

Fever Blisters.—I often abort fever blisters, when fresh, by using on their first discovery hydrogen dioxid, and then touching with resinol, which has a most wonderful power of reducing subdermal inflammation of a local character.

C. B. Colson, Items of Interest.

Sensitive Dentin—Cataphoresis.—There is a class of patients for whom complete anæsthesia of the dentin is essential. It is one of the greatest surprises of our practical experience to find how man after man has given up the use of the cataphoric apparatus for this class of patients. The results are so satisfactory where I find it necessary to obtain complete anæsthesia that it is a mystery to me that men are willing to give it up for something that alleviates the pain it is true, but that does not remove the sensation.

M. L. Rhein, Cosmos.

To Rotate a Tooth with Silk Thread.—The portion of thread that forms the noose to grip the tooth must not be waxed; if waxed it will slip its hold. Before applying, double the thread, cover about half an inch at the fold with thumb and forefinger, and wax from this portion out to the free ends. Put a double noose of the unwaxed portion of the silk around the tooth to be rotated and tie—first a surgeon's and then a granny knot, drawing as tightly as possible. Coil the threads two or three times around the root in the direction the tooth is to be rotated, stretching the thread till it will yield no more, and make your fastenings.

W. J. Younger.

Preparation of Labial Cavities—The Cervical Margin.—The proper extension of the cavity, root-wise, involves the carrying of the cervical margin well under the gum, first, because there will then be no recurrence of decay at that point, and, second, the gum is more likely to remain healthy when overlying a smooth gold filling than when overlapping tooth tissue, especially if there has been recession of the gum. In many cases the gum will creep so far crown-wise as to cover the neck of the tooth and filling far in excess of its position before the operation. When the gum has filled a large cavity with a hypertrophied mass it should be cut out with a lancet, and the cavity packed with gutta-percha for several days, extending it well over the cervical margin, so as to force the gum back, avoiding laceration.

C. N. Johnson, Dental Cosmos.

Gutta-percha Dissolved in Oil of Eucalyptus for Root-canal Fillings.—It will not dry down hard in the bottle, and best of all it will not shrink in the root-canal. If you have trouble in dissolving the gutta-percha, warm the mixture slightly.

Dr. Charles E. Slagle.

Peridental Inflammation, Cataphoric Treatment.—To a saturated solution of potassium iodid add about one-fifth the quantity of a mixture of equal parts of the tinctures of iodine and aconite. Saturate a pledget of cotton with this mixture, and by means of the rubber-cup electrode apply to the inflamed gum. About one milliamperere of a ten-cell current, continued not longer than five minutes, will reduce the inflammation, the pain quickly subsiding; there is seldom a recurrence.

J. M. Fogg, Dental Cosmos.

Formagen Cement for Pulp Capping.—Formagen consists of a powder, principally calcium carbonate, as a medium and a liquid—carbolic acid and eugenol, each saturated with formaldehyde vapor, which is gradually given off when the two are mixed together. Remove all carious tissue from over the pulp; place cement in a concave disk and apply over the pulp. Cover with oxyphosphate cement and fill permanently.

H. F. Brooks, Journal B. D. A.

Preparation of Occlusal Cavities.—The depth of the cavity pulpally is governed in the carious portions by the extent of decay and in the fissured portion by the depth of the fissure. Just when the bottom of the fissure is reached is sometimes uncertain, on account of the fine particles of tooth-tissue from the drill hiding it from view. This may be overcome by flooding the cavity with one of the essential oils, which will cause the fissure to show up dark, presenting its entire outline.

C. N. Johnson, Cosmos.

The Use of Alveolar Forceps.—When it is necessary to remove a number of broken-down teeth and buried roots, the jagged margins of the alveolar process and the numerous septa cause suffering, prolonged sometimes for weeks and months as the scar-tissue of the healing soft tissues is drawn taut across the projecting points of bone. It is a humane operation to present—by means of a surgical operation—to the torn and mangled gums, a smoothly-trimmed, rounded surface, over which they heal rapidly by first intention.

J. Y. Crawford.

Sensitive Dentin—Vapocain.—I have used vapocain with a great deal of success. By placing it in a cavity and tying rubber-dam around it, leaving it there for the heat to expand, I have had better success than in leaving it exposed to the air.

Dr. Van Vlick, Cosmos.

Devitalization of Inflamed Pulp.—Wash out the cavity and seal it lightly over a dressing of oil of cloves. At the end of twenty-four hours you will find the inflammation has subsided and the pulp ready for the devitalizing agent.

S. B. Lewis, Indiana Dental Journal.

Sterilization of Root-canals, Abscess, Cavities, etc.—The soluble metal electrode offers a convenient method of sterilization. An elongated zinc bulb is mounted upon an insulated handle and inserted into the cavity. The action of the current is an electrolysis of the metal, and a generation of zinc chlorid, which is conveyed into the tissues. Dr. Geo. B. Massey suggests that the zinc be coated with mercury, generating and depositing the chlorides of both mercury and zinc. In small root-canals a fine gold wire coated with mercury may be used.

J. M. Fogg, Dental Cosmos.

Hygienic Lower Dentures.—Watts' and Weston's metals are alloys largely composed of tin and silver, to which a small amount of bismuth is added to reduce the melting point. The saline fluids in the mouth when acting on the plates may form chlorid of tin, as tin is easily attacked by chlorin. This chlorid of tin is a strong antiseptic agent, which will exert its good influence upon the mucous lining of the oral cavity; no toxic salts being formed for this reason.

H. Printz, Dental Digest.

Setting a Crown.—Warm the crown, and while warm apply a little chloro-gutta-percha to—or in other words, paint the post with it. The chloroform immediately evaporates, leaving a thin film of gutta-percha. Apply the crown to the root and remove as quickly as possible. Warm the crown again and repeat a number of times until it is well in position. Then remove and heat the crown once more, and insert on the inside of the cap or on the end of the root enough creamy oxyphosphate cement to fill any interstices, and put the crown in place. If necessary to remove the crown at any time apply heat, and it is readily removed without injury to the crown or pin.

Geo. Evans, Dental Cosmos.

Miscellany.

Improper Use of the X-ray.—A suit instituted by a Chicagoan against W. C. Fuchs and Dr. O. L. Schmitt, who conducted an X-ray laboratory, to recover for the loss of a limb and other injuries which he claimed to have sustained by the improper application of the X-ray to his foot, has been decided in favor of the plaintiff, who was awarded \$10,000 damages. It was alleged that in order to ascertain the cause of the stiffening of the plaintiff's ankle-joint the defendants exposed the ankle three times to the X-ray, the result being that the flesh became decomposed, and that three amputations were necessary to save the patient's life.—*Med. News.*

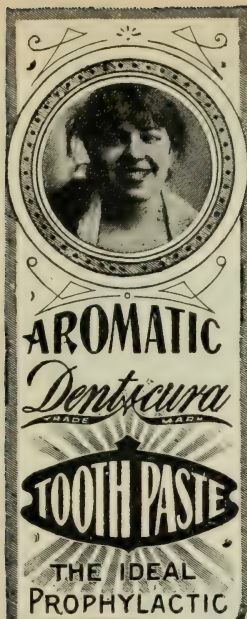
Death Under Anaesthesia.—At the Society of Anæsthetists, London, March 17th, Granville spoke of the death of a boy, aged seventeen years, to whom gas and oxygen were administered for twenty minutes. The supply being exhausted chloroform was given with great care. After four or five minutes the pulse became weakened, and the chloroform was at once withdrawn. The pulse quickly failed, but the breathing continued deep and regular for five minutes, and then the patient died in spite of every restorative effort. He thought that chloroform should not be given after gas and oxygen, the effect of which is undoubtedly to dilate the heart.

Extirpation of the Stomach.—A report is given of the condition of Schlatter's famous case of total extirpation of the stomach during the last months of the patient's life. The operation was performed September 6th, 1897, and the patient left the hospital in good condition about the last of May, 1898. In August she returned, having lost 2 kilos in weight, which was thought to be due to the difficulty of obtaining suitable nourishment. About the beginning of September painful sensations were experienced in the left hypochondrium after taking solid food, but liquid food was not complained of, October 2d a hard nodular tumor, the size of a child's hand was felt in the left hypochondrium, and enlarged, hard, lymphatic glands could be felt in the supraclavicular region. October 18th severe pains were felt in the abdomen and lumbar region, and patient was compelled to go to bed because of general weakness. Her condition became gradually worse and she died October 29th, one year and nearly two months after the operation. At the necropsy a mass of metastatic carcinomatous nodules about the size of two fists and consisting of enlarged mesenteric glands was found extending from the transverse colon. The retroperitoneal, bronchial, and supraclavicular glands were also affected by the disease, and the pleura was studded with carcinomatous nodules, from the size of a pin-head to a split pea. The lower portion of the esophagus was dilated, due in part to the carcinomatous infiltration of its inner wall.

Carbolic Acid Gangrene.—H. R. Leipzeger (*Virginia Medical Semi-Monthly*, April 14th, 1899). Carbolic acid has come to be generally used as a family remedy. It is doubtful if many persons know that even a weak solution of carbolic acid when applied continuously to the fingers or toes may cause rapid and hopeless gangrene, and it seems that not all practitioners are aware of this danger. Forty-three examples of such injury have been collected from literature. Two cases are reported in which serious results followed the use of carbolic acid as a domestic remedy; in one case amputation of a finger was necessary as the result of the use of a cloth saturated with a solution containing 20 or 30 drops of carbolic acid to the ounce.

Hutchinson's Teeth.—Dentz offers the suggestion that Hutchinson's teeth are an evidence of reduction in the number of the teeth. In support of this view he notes the fact that in man the incisors have already been reduced from 3 to 2 on each side; he also cites a number of cases in which Hutchinson's teeth were present, with absence of one incisor or of its reduction in size to such a degree as to indicate that it was on the way toward disappearance; and he points to the fact that various stages of apparent reduction are found in different members of the same family. Dentz has found Hutchinson's teeth in individuals that certainly presented no sign of congenital syphilis, but he suggests that their frequent occurrence in syphilis may possibly be due to the fact that the disturbances of nutrition that are always present in congenital syphilis give an impulse to reduction.—*Zuschrift für Klin. Med.*

Resuscitation from Chloroform Syncope.—Kelly recommends the following plan, which combines inversion and artificial respiration in an especially effective manner: "On the first indication of failing respiration the administration of the anæsthetic should be instantly suspended and the wound protected by a fold of gauze. An assistant steps upon the table and takes one of the patient's knees under each arm, and thus raises the body from the table until it rests upon the shoulders. The anæsthetizer in the meanwhile has brought the head to the edge of the table, where it hangs extended and slightly inclined forward. The patient's clothing is pulled down under the armpits, completely baring the abdomen and the chest. The operator, standing at the head, institutes respiratory movements as follows: Inspiration, by placing the open hands on each side of the chest posteriorly over the lower ribs, and drawing the chest well forward and outward, holding it thus for about two seconds; expiration, reversing the movement by replacing the hands on the front of the chest over the lower ribs and pushing backward and inward, at the same time compressing the chest. The success of the manoeuvre should be demonstrated by the audible rush of the air in and out of the chest."—*The Practitioner*, May, 1899.



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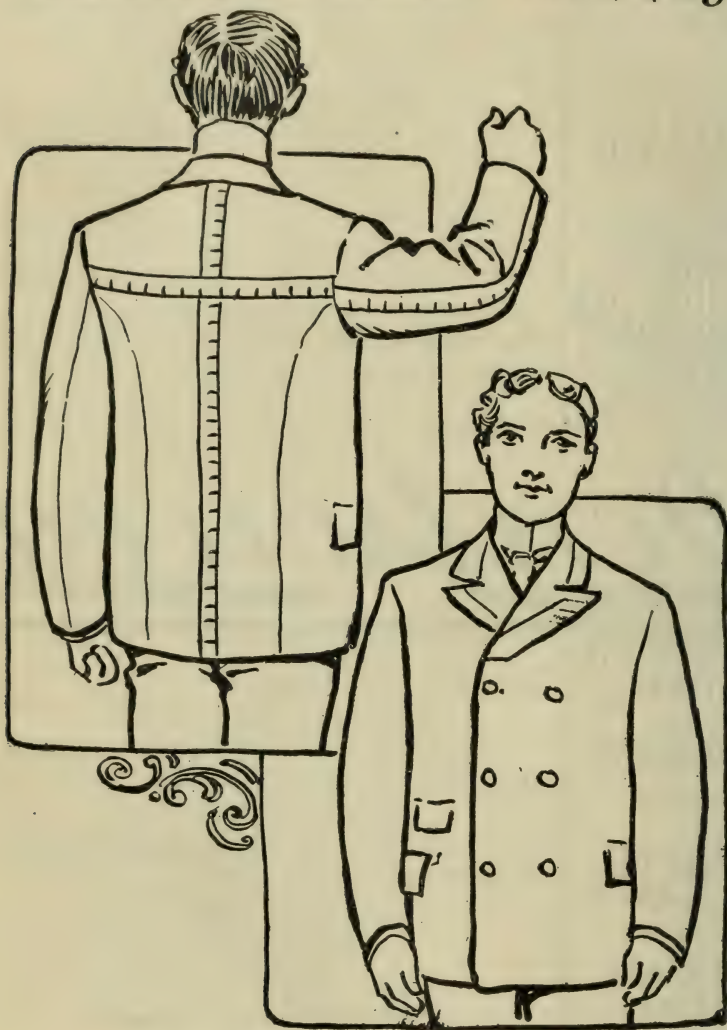
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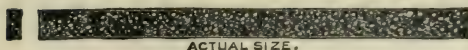
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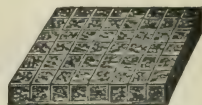
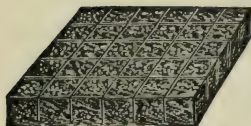
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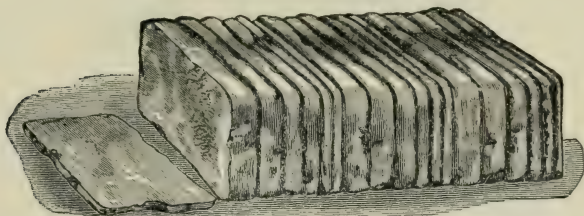
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are a dentist's most profitable patients.

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THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, SEPTEMBER, 1899.

No. 9

ORIGINAL COMMUNICATIONS.

SARCOMA OF THE SUPERIOR MAXILLA, INVOLVING THE MAXILLARY SINUS.

*By W. J. Roe, M.D., D.D.S.**

Sarcoma I believe to be the most formidable disease affecting the maxillary bones. Involvement of the maxillary sinus when sarcoma originates in the superior maxilla occurs in the majority of cases, and is often improperly called sarcoma of the maxillary sinus.

PATHOLOGICAL HISTOLOGY.

Sarcoma is essentially a malignant neoplasm, the cellular elements of which largely predominate and resemble in type embryonic connective tissue cells. The intercellular stroma is in proportion to the malignancy of the tumor. As a rule there is very little stroma. These growths are very vascular, and contain many vessels of new formation which, in some cases, appear to form the framework of the tumor. Cell proliferation progresses most rapidly in the immediate vicinity of the blood-vessels, and appears to be influenced by them. The vessels are in direct communication with the cellular elements, the walls of which are usually composed of a single layer of endothelial cells, and in some cases, as Waldeyer first pointed out, the walls of capillaries are composed of the tumor cells with a thin intercellular substance.

Histologically, sarcoma is divided according to the predominance in type of the cellular elements and histological structure into several varieties: 1, round celled; 2, spindle celled; 3 giant celled; 4, mixed celled; 5, alveolar; 6, melanotic. The cells are

*Professor of Surgical Pathology and Oral Surgery, Pennsylvania College of Dental Surgery.

nucleated, which nuclei seldom have a definite limiting membrane, and may be mono- or poly-nuclear, and have no regular arrangement. Lymphatic vessels are not present in this class of tumors.

Round-celled Sarcoma.—The round-celled variety may be composed purely of round cells, either small or large, but usually it contains some spindle cells. These contain large nuclei which have an abundant supply of chromatin, especially when the tumor is developed rapidly. But few leucocytes are present, and these are usually found near the vessel walls. When the growth is very vascular, and the extension takes place along the walls of the vessels, it is frequently called angio-sarcoma.

Spindle-celled Sarcoma.—The spindle-celled variety is most common, and may be composed purely of spindle cells, but usually contains some round cells. The cells usually contain a single nucleus about their centre. The cells may be either large or small, some being four times larger than others. They are irregularly arranged, and if placed in parallel layers they present a fibrous appearance. The stroma varies in amount, and when abundant the tumor is often called a fibro-sarcoma.

Giant-celled Sarcoma (Central, Myeloid, Osteo Sarcoma).—The giant cells in this variety resemble the myeloplques, and are poly-nuclear with distinct nucleoli. Such tumors always contain some round and spindle cells, and usually have an abundance of fibrous stroma. As a rule they are not very vascular, but may pulsate. The pulsating giant-celled sarcoma when developing within bone tissue is often very hard to distinguish from an aneurism. These growths arise preëminently from bone or periosteum, and are by far most frequently found occurring in the alveolar process or from the periosteum of the tooth sockets of the maxilla. They usually are of slow growth, and are the most benign and least liable to cause metastatic infection of any of the other varieties. On section the surface presents a brownish color with often small areas which are pink or white.

Mixed-cell Sarcoma.—In mixed-cell sarcoma none of the cells which have been described are found to predominate, but there is an intimate mingling of round, spindle, and giant cells in varying proportions. They are found most frequently arising from the periosteum or bone, and are slow in growth and less malignant than either the round or spindle celled varieties.

Alveolar Sarcoma.—This variety is distinguished from

the other types on account of the stroma. It resembles very closely the alveolar arrangement of the stroma of malignant epithelial neoplasms. The alveoli contain groups of round cells. The blood-vessels are found in the connective tissue stroma, and do not enter the alveoli. These tumors are found most frequently in the skin, especially at the site of a previous mole or wart. They may occur in the maxillary sinus.

Melanotic Sarcoma.—The melanotic variety may contain any one of the varieties of cells, or may contain all of the different types of cells, and is characterized by a black or brown pigmentation of the cells and intercellular substance. It is found in the intercellular substance in the form of a brown or black granular pigment, while in the cells it is more diffuse. It differs from the other varieties only in the presence of this pigment, and in the fact that it frequently causes regional glandular involvement. The metastatic tumors always present the same characteristic appearance. They develop more rapidly, and are probably more malignant. Hemorrhage sometimes occurs in these tumors, but the pigmentation has been proven not to be due to extravasations of blood.

PATHOLOGICAL ANATOMY.

Sarcoma of the superior maxillary bone originates either from the periosteum or within the bone substance, and hence is often designated as either periosteal or central. I believe that by far the greater number begin in the periosteum, and almost always in the periosteum covering the alveolar process, either upon its external reflexion or in that portion lining the tooth sockets, and known in dental literature as the pericemental membrane. I cannot dispute the central origin of at least a small number of these neoplasms, but find that most frequently they begin within the alveolar process, or about the junction of the alveolar process with the body of the superior maxilla. The tumor most frequently develops into the maxillary sinus, the floor of which, being involved either primarily or secondarily, affords the point of least resistance to its growth upward. If the site of origin is much below the floor of the maxillary sinus, we have involvement of the alveolar process, with displacement of the teeth, and later extension into the maxillary sinus, the horizontal plate of the maxilla being very rarely involved. When the original site is in the region of the cuspid tooth or anterior teeth, the extension takes place either upward, and involves the floor of the

nares, and subsequently extends into the adjoining maxillary sinus, or if developing about the median septum of the floor of the nose, the extension may take place simultaneously into each maxillary sinus. If the growth develops downward in the cuspid or incisor region, we have the involvement of the alveolar process, and displacement of the corresponding teeth. The maxillary sinus not infrequently is involved secondarily from primary sarcoma, either of the nares, base of the skull, sphenomaxillary, pterygo maxillary, or orbital fossæ.

ETIOLOGY.

The causation of tumors unfortunately as yet is largely theoretical. The inclusion theory of Cohnheim supposes that there is an excess of embryonic cells necessary to construction of the foetal tissues, and that this mass of latent embryonic cells may later in life be stimulated to active proliferation.

Heredity influence is very questionable; probably at most it can only predispose. Age, as a predisposing factor, has a very important bearing on sarcoma. "Physiological activity favors the development of sarcoma, while physiological decline favors the development of cancer." (DaCosta.)

Sarcoma is found at all periods of life; there are many recorded cases present at birth, and well authenticated cases in far advanced life. It is by far most frequent in early adolescence. Injury, although the traumatism may be comparatively slight, appears to exert an important influence in the causation of these growths, and, possibly, is due to the stimulus or increased activity of the cellular elements (cell proliferation) of the part, as the result of the inflammatory reaction, which supposition is in accordance with the theory of DaCosta, that physiological activity favors the development of sarcoma.

Parasitic influence, either by endogenous or exogenous infection, producing irritation is at present occupying the attention of pathologists, but their theories as yet are not well defined. These growths begin from preëxisting connective tissue, such as subcutaneous, submucous, intermuscular, periosteal, tendonous tissues, also bone, cartilage, fat, lymphatic glands and internal organs, in fact from connective tissue anywhere.

Tiffany, of Baltimore, in writing on sarcoma of the jaw, says: "I think that the majority of central tumors of the lower jaw originate in tooth follicles." Senn and Sutton also sustain

this theory, but say "such sarcoma are seen in children, and commence in the molar region of the maxilla." Pathologists, however, are unable to satisfy themselves on this point on account of the invariably extensive involvement of adjacent structures before the tumor is excised; this is especially true of those that develop into the maxillary sinus, which usually attain a very considerable size before the patient has any intimation of their presence.

SYMPTOMATOLOGY.

In primary sarcoma of the periosteal lining of the maxillary sinus, there may be entire absence of symptoms until the growth completely fills the sinus. In some of the cases I have observed, the only symptom complained of, previous to the beginning of evidence of pressure, was a persistent muco-purulent discharge from the corresponding nasal chamber. When this discharge is found unassociated with nasal lesions, it should lead to the supposition of either inflammatory or malignant involvement of the sinus. When symptoms of pressure begin, patients usually complain of numbness in the teeth of the corresponding side, due to pressure on the distribution of the posterior and anterior dental nerve. Coincident with these symptoms, or following soon after, patients experience increasing obstruction to the entrance of air through the corresponding nasal chamber, due to the extension of the growth in the line of least resistance, usually through the ostium maxillare. Next most frequently the external walls of the sinus becomes displaced outward, and with this we usually have associated some tenderness of the soft tissues overlying the part, and usually some pain. Usually the floor of the orbit yields sooner or later to the pressure, and is carried upward, causing exophthalmos, and sometimes double vision. The posterior wall of the sinus also becomes distended backward, but the horizontal plate very rarely becomes displaced, unless the growth is very extensive.

When the walls of the sinus yield, the growth rapidly invades the soft parts, and most frequently appears upon the face as a nodule in the lower eyelid. When the skin or mucous membrane becomes involved, and ulceration takes place, septic symptoms develop, and with this marked increase of pain.

From the very beginning of malignant disease, there is disturbance to the general health, marked by progressive loss of weight and strength, with associated anemia and leucocytosis.

In advanced cases, the anemia and wasting are quite characteristic.

Hemorrhages frequently take place from the ulcerated surface, and are sometimes troublesome, and become important contributory factors to the anemia.

When secondary infection takes place in these growths, there is a very foul and irritating discharge, considerable of which is inevitably swallowed, either during sleeping or when partaking of nourishment, and this also largely assists in the disturbance of general nutrition.

The pain soon becomes so severe that sleep is much disturbed, and large and increasing doses of morphia are necessary. If the extension takes place to any great extent into the pharynx, deglutition and respiration are interfered with. Some of these unfortunate cases die from suffocation or from obstruction to deglutition. The majority, however, perish from exhaustion and sepsis, and a few from hemorrhage.

DIAGNOSIS.

There are many points to be considered in the diagnosis of these cases, and notwithstanding the greatest care, combined with knowledge of and experience in these conditions, a positive diagnosis cannot always be made in the earlier stages. There are unfortunately too many cases recorded, in which most competent surgeons have removed the entire superior maxilla for presumably malignant disease, and have found when too late, their error in diagnosis. These unfortunate mistakes subject the patient to unnecessary risk and deformity. In cases where a positive diagnosis cannot be made, the surgeon should always make an exploratory incision, as this in no way interferes with the success of the subsequent operation.

If, as in many cases, a portion of the tumor becomes accessible through its extension into the nasal chamber, a small portion can be removed for microscopic examination, and a positive diagnosis can then be reached. This is a very important procedure, and can usually be made early in the case.

DIFFERENTIAL DIAGNOSIS.

The differential diagnosis between sarcoma of the superior maxilla involving the maxillary sinus and primary carcinoma of the mucous membrane of the maxillary sinus cannot always be made, but from the fact that primary carcinoma of the mucous

membrane of the sinus occurs so very rarely, surgeons are, as a rule, justified in assuming the tumor to be sarcoma. Carcinoma of either the superior or inferior maxillary bones is never a primary affection, but is always secondary to epithelioma, beginning in the mucous membrane, which is the only form of carcinoma found in these tissues. Primary epithelioma of the mucous membrane of the gums covering the alveolar process and hard palate is comparatively rare. In the Cancer Hospital, Brompton, England, Dr. Frederick B. Jessett reports eight hundred and forty-one cases of epithelioma, in which only twenty-five began primarily in the mucous membrane of the gums, being only 2.9 per cent. Primary epithelioma of the mucous membrane of the maxillary sinus is very rare; many surgeons state they have never seen a case. Dr. Reinhard* and Dr. Wendell Philips† each report one case.

The only instance of primary carcinoma of the mucous membrane of the maxillary sinus which I have observed is Case No. 2, reported in this paper. This tumor clinically did not differ in any respect from sarcoma of the superior maxilla involving the maxillary sinus, and it was impossible to make a differential diagnosis without a microscopical examination of a portion of the growth. Dr. Hearn, who operated upon this case, was able to make a provisional diagnosis of carcinoma from the appearance of the ulcerated growth from within the mouth, but said that he believed he had never seen a case of primary carcinoma of the mucous membrane of the maxillary sinus.

A specimen of this growth previous to the operation was removed, and prepared by the rapid method for microscopical examination, and proved to be an epithelioma. After the operation, numerous sections were prepared from different portions of the growth and involved parts, and the diagnosis of carcinoma was confirmed. Each section of the growth showed the tumor to be composed of squamous epithelial cells, the characteristic nesting within the stroma of carcinomatous cells being clearly seen; many of the pearl like bodies also were found.

I believe this to be a primary epithelioma of the mucous membrane of the maxillary sinus from the fact that it is composed of squamous epithelial cells, and also shows the charac-

* "Ein Fall Von Primaren Epithelial Carcinom der Oberkieferhohle," *Archiv f. Laryngologie*, Bd. ii, p. 230.

† *Journal of Laryngology*, July, 1898.

teristic pearl formations, and that clinically the alveolar process was involved secondarily. Being a squamous-celled epithelioma, the only other possible primary origin would be from the epithelial remains of a tooth follicle. If the tumor had its origin in the tooth follicle, it would have involved the alveolar process in its early growth. From the fact that the tumor showed many pearl formations which only developed from pressure late in these growths, I believe that the tumor had been growing for many months within the maxillary sinus before secondary involvement of the alveolar process occurred, which involvement caused the teeth to become loose and tender on pressure; these symptoms were complained of only six weeks previous to the operation. The extensive growth of the tumor and involvement of surrounding tissues found at the operation proved that it had existed for a much greater time than the symptoms had indicated.

With Dr. Hearn's permission, I take the liberty of reporting this case in this paper, as the surgical and prosthetic treatment is the same as for sarcoma of the superior maxilla involving the maxillary sinus, and also because it demonstrates the difficulty of making a differential diagnosis between primary carcinoma of the maxillary sinus, and sarcoma of the superior maxilla involving the maxillary sinus. This case also is of special interest on account of its occurrence in a colored man, as in the colored race malignant disease is comparatively rare.

The epithelial variety of carcinoma of the mucous membrane of the maxillary sinus when it does occur, differs clinically from epithelioma in other portions of the body in not causing secondary or regional lymphatic involvement; this is due to the absence of lymphatic vessels within the mucous membrane of the sinus, a fact which was pointed out by Gross, and carcinoma in this situation does not differ in that respect from sarcoma.

Dentigerous cysts can be distinguished from malignant growths by the fact that they almost invariably occur during the developmental period of the teeth, and are of slow growth and never painful, except from pressure upon the nerve trunk. When they have not yet caused distension of the walls of the sinus, their presence is seldom recognized; if, however, there is evidence of unerupted teeth, which are over due, and by means of transillumination of the sinus there is no appreciable interference in transmission of light, the probabilities are that a cyst

is present. When a cyst distends the walls of the maxillary sinus and causes thinning, distinct crackling can be elicited upon palpation of the outer wall, and a sense of fluctuation also can be felt, but this is often deceptive, as a similar symptom is sometimes present in rapidly occurring small round-celled sarcoma.

Solid tumors, such as enchondroma and osteoma, invariably occur in early life, and are characterized by usually slow growth, absence of pain, and no disturbance to the general health. Their occurrence is comparatively rare.

Fibroma is probably more frequent than either enchondroma or osteoma, which very rarely occurs primarily within the sinus, but begins within the nares and extends into the sinus. A careful rhinoscopic examination will usually reveal their origin. They have a slow growth, and the softer varieties are apt to cause repeated hemorrhages. Only from their obstruction of respiration and the loss of blood they occasion, do they interfere with health.

The distinguishing features between sarcoma involving the sinus and empyema of the sinus, are that the onset of the latter is usually quite sudden and characterized by considerable pain, which is felt not only in the maxillary region, but over the entire half of the face; it is often quite severe in the frontal regions, and is intermittent in character and associated with the clinical evidence of inflammation. The two most frequent causes of empyema are occlusion of the ostium maxillare, produced by intranasal disease, and alveolar abscess involving the sinus. If either of these two conditions exist, they strengthen the supposition of empyema. The transmission of light is of very little help in this class of cases, as the liquor puris of the pus contained within the sinus becomes absorbed, leaving principally the cellular portion which interferes with the transmission of light practically as much as the softer varieties of sarcoma. The walls of the sinus may become very much distended from the purulent collection before it makes its exit. The discharge most frequently occurs a little below the inner canthus of the eye. The diagnosis of empyema is sometimes made by extracting a diseased tooth in relation to the sinus, which is usually followed by an escape of pus and rapid amelioration of all the symptoms.

COURSE AND PROGNOSIS.

Sarcoma is unquestionably the most rapidly fatal of ma-

lignant diseases, and when it involves the maxillary sinus it destroys life, usually within two years. The malignancy of sarcoma is in proportion to the size of the cellular elements, and the amount of intercellular stroma. The small, round-celled variety is the most malignant, has very little stroma, and seldom, except in its early history, has any definite capsules. Such growths rapidly infiltrate the surrounding tissues, and only early and wide excision offers any assurance of more than palliative results.

Second in order of malignancy is probably the large spindle-celled variety, and next the mixed cell and alveolar. Of all varieties the giant celled is by far the least malignant.

The anatomical relation of a malignant tumor is an important factor in the rapidity with which it produces death, and, unfortunately, the maxillary sinus is so situated that through involvement of the cavities and tissues surrounding it, especially if the tumor invades the orbital cavity, it rapidly gains entrance to the interior of the skull; or, if the pharynx is extensively involved, deglutition and respiration are correspondingly interfered with. The time elapsing between the beginning of the disease and the operation does not bear any relation to the prognosis of the case; the giant celled variety, however, offers a much more favorable prognosis, even though the operation is performed many months, or possibly years after the first symptoms appear; whereas, the small, round celled variety offers but little hope for a permanent relief, even though the operation is performed immediately upon the recognition of the tumor, or within the first few months thereafter. It is, therefore, not the period at which the operation is performed, but the variety of tumor itself that governs the prognosis. After the tumor has invaded the tissues outside of the maxillary sinus, operation is only justifiable as a palliative measure.

Rhexis is of frequent occurrence in rapidly growing sarcoma, and sometimes causes detachment of cellular elements which possess ameboid movements, and, encountering few obstacles in gaining access to the blood circulating in the tumor itself, are in this way carried to other portions of the body, and give rise to regional and general dissemination. Traumatism to the growth itself is very probably productive of some mischief.

Secondary inflammation, which sooner or later results, hastens the rapidity of development, and the longer this con-

dition can be prevented the better the prognosis as regards duration. This has an important bearing, and should interdict any surgical interference short of complete excision.

The repullating disposition of sarcoma of the maxillary bone is most marked and very disappointing. Regional involvement, including the head and neck in advanced cases, is quite marked, but metastasis of the internal organs is comparatively rare. As above remarked, there is but one treatment which offers anything more than palliative results, and that is early and radical operation. In advanced cases, a palliative operation is quite justifiable if the general conditions of the health of the patient permit, and in many of them life, with comparative comfort, is prolonged many months.

SURGICAL TREATMENT.

There are many operations which may be performed and which are advocated by different surgeons, but in this paper I will consider only the three which are most frequently employed, namely, excision from within the mouth; excision after exposing the parts by making a flap of the soft tissues, overlying the bone; and excision including the involved soft parts.

General Considerations Governing These Operations.—A positive diagnosis is the first requisite, and if not made, exploratory incision is demanded. The hemorrhage which takes place during the operation is the most serious consideration, and led the pioneer operators to perform in many cases preliminary tracheotomy with tamponing of the pharynx to prevent the ingress of blood to the lungs; many considered it necessary also to put a temporary ligature upon the corresponding carotid. These procedures, however, have in late years been proven to be uncalled for. In all operations upon the superior maxilla causing much hemorrhage the Trendelenburg position with lateral rotation of the head allows the blood to escape from the mouth without causing any interference with respiration. The choice of the anæsthetic rests with the operator, but owing to its greater safety the preference should be given to ether, notwithstanding the fact that with this agent the patient reacts more quickly, and that the anæsthetizer has to administer it more frequently, often to the annoyance of the operator. When the patient is anæsthetized to the surgical degree, the operator should with all possible rapidity and skill excise the entire maxilla, tamponing the wound with sterile or iodoform gauze before the patient reacts sufficiently to appre-

ciate pain. A partial restoration of the patient to consciousness is in some cases of the highest importance, as it permits the expulsion of any blood or fragments of the tumor which may have dropped into the pharynx or have gained entrance to the trachea, and on this the safety of the patient often depends. After the hemorrhage is controlled, further anæsthesia can be produced with almost perfect safety. The surgeon should always have at hand, ready for immediate use, a saline transfusion apparatus, as by this means he can prevent any depression to the general circulation and the possible danger of heart clot.

The operation from within the mouth is seldom justifiable, and should be performed only in the least malignant cases, such as the giant cell, or alveolar variety, involving the alveolar process and the floor of the maxillary sinus. In such cases it is possible to completely excise the tumor by removing the alveolar process together with the floor, outer, internal and posterior walls of the sinus without making an external incision. This operation produces very little deformity except depression in the cheek, which can partly be remedied by the introduction of a denture having the complement of teeth, and which is retained either by atmospheric pressure or by clasps to the teeth on the opposite side, or by both.

The excision of bone in this operation is most easily accomplished by the use of the chisel and mallet and rongeur, or other bone cutting forceps. As a rule, packing the cavity is all that is necessary to control the hemorrhage.

To illustrate the operation from within the mouth, the report of the following case will suffice: H. S., aged 45, farmer. Six weeks before coming under observation he first noticed a growth in the region of the left upper first molar. The growth gradually increased, involving the alveolar process of the second molar and second bicuspid. He had no pain or tenderness during the first three weeks. On admission to the hospital, six weeks after the growth appeared, it had involved the entire alveolar process on the left side posterior to the first bicuspid tooth. A portion removed for microscopical examination showed the growth to be giant-cell sarcoma. Excision of the tumor from within the mouth was considered advisable on account of the variety of the growth and the comparatively local involvement. The operation was performed March 1st, 1899, by Professor Wm. Joseph Hearn and the writer. When the alveolar process was

removed with the floor of the maxillary sinus, a portion of the growth was found to completely fill the maxillary sinus and to be attached to the floor only. The outer, inner and posterior walls of the maxillary sinus were next removed, and the cavity packed. A photograph (Fig. 1) taken July 1st, 1899, shows the condition of the patient four months after the operation. The depression in the cheek is scarcely noticeable, and there is no evidence of any recurrence. The cast (Fig. 2) shows the condition of the mouth at the same time, the maxillary sinus having become obliterated by soft tissue.

In complete excision of the superior maxilla, Weber's incision is most frequently employed; this begins in the median



Fig. 1.

line of the upper lip, extends outward at right angles, to the alæ of the nose, then is curvilinear around the alæ to the lateral aspect of the nose, then vertical to about one-half inch below the inner canthus, then outward in a horizontal direction to about the anterior border of the malar bone. This incision gives free access to all portions of the maxilla, and is to be recommended from the fact that the facial nerves and artery are divided at their distal extremities, and do not cause to any appreciable extent trophic or nutritive disturbance to the cheek.

The flap is next dissected from over the periosteum and reflected outward. The coronary and facial arteries are ligated, and other bleeding points secured by pressure. The periosteum is then divided at the points where the bone incision is to be made, the lateral cartilage of the nose is freed from the maxilla, and the internal angular process is divided by either saw or chisel.

Next the malar bone is divided in the same manner in a downward and outward direction just back of its articulation.

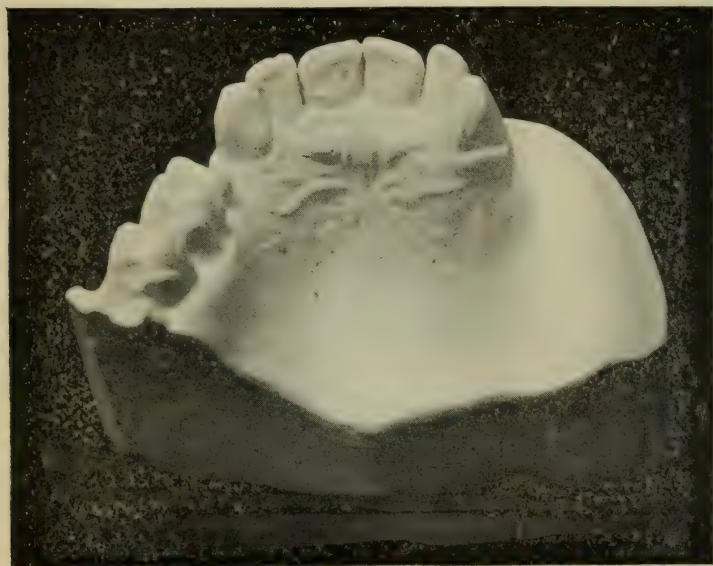


Fig. 2.

So far in the operation the hemorrhage has been practically external to the oral cavity, and little, if any, blood should have been allowed to enter the mouth.

Next the incision is carried along the median septum of the floor of the nose and along the median line of the hard palate, the soft palate is then separated by horizontal incision from the palate bone. The incisor tooth on the infected side is extracted, and a saw can be introduced into the nose, and the alveolar process and horizontal plate divided from that of the opposite side. Some operators prefer the chain saw, others the straight, stiff saw. If, however, there is much hemorrhage, the saw can be dispensed with entirely, and the bone can be rapidly detached

and loosened with the chisel and mallet, and forcibly wrenched away with lion-jaw forceps. In the majority of cases, especially where the vascularity of the parts is marked, the chisel and mallet should always be used, as the operation can be completed with remarkable facility, and the hemorrhage immediately controlled by pressure, and thus securing comparatively little loss of blood. After oozing has been controlled, the bleeding vessels can be ligated, but as a rule few require ligation.

The wound edges are next trimmed, and carefully inspected to ascertain if all the involved parts have been removed, as it may be found that the growth involves the tissues of the posterior orbit, necessitating the removal of the eye and its appendages; in some cases the growth may have extended into the frontal sinus. The entire cavity is packed with iodoform or sterile gauze, and the flap is brought back in position and sutured, preferably with silk-worm gut. As soon as the wounds have healed, an obturator with the complement of teeth can be inserted, and will be retained by the pressure of the lip and cheek. This in time becomes an involuntary function. The introduction of an obturator in these cases should always be recommended, as it affords the patient very great comfort both in phonation and mastication, by preventing air and food from passing into the nares; it also lessens the deformity produced by falling in of the cheek.

The second case illustrates the result of complete excision of the superior maxilla with the flap of soft tissue sutured in its original position, the obturator with its complement of teeth used to correct the deformity and restore the function of the parts is also shown. J. S., aged 40, colored, stevedore, was admitted to the hospital June 29th, and operated on July 1st, 1899, by Professor Wm. Joseph Hearn and the writer. Eight weeks previous he first noticed that the second upper left molar was slightly sore to touch and somewhat loose. The tooth was free from caries, as were also all the teeth on the same side. The tooth in the next two weeks became very loose and quite tender to touch. He consulted a dentist who extracted the tooth. At this time there was no perceptible evidence of any new growth. Two weeks after having the second molar extracted, he had the third molar extracted, because it had also become loose and very tender to touch. From this time he experienced considerable pain in the left side of face, and gradually the left nasal chamber

became obstructed. On admission to the hospital the left cheek was somewhat fuller than the right, and the left nasal chamber was occluded. The alveolar process back of the first molar was entirely destroyed and occupied by a new growth which had an ulcerated surface. The bicuspid teeth and first molar were quite loose and tender to touch. A probe could be passed into the maxillary sinus which was found to be completely filled by a soft growth. The patient had lost some thirty-five pounds in weight since the trouble began. A small portion of the growth

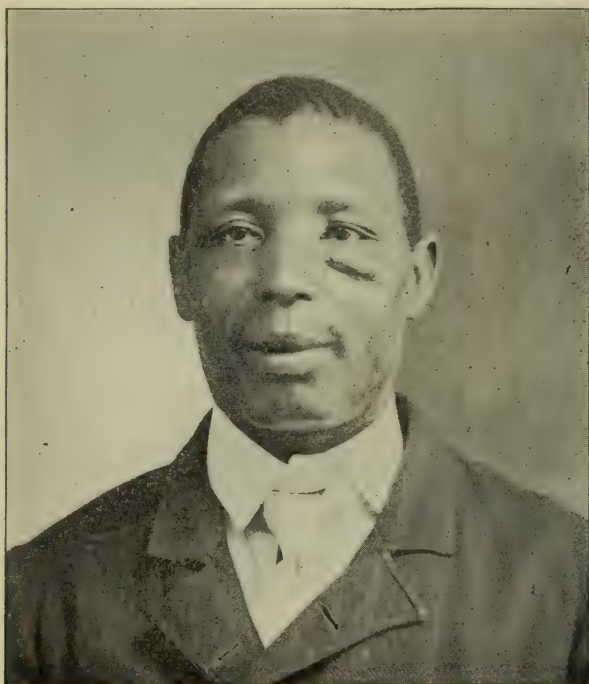


Fig. 3.

was excised for microscopic examination and proved to be squamous-celled epithelioma. At the operation the growth was found to have extended through the external wall of the maxillary sinus, and to some extent to have infiltrated the overlying soft tissues. The tumor had filled up the left nasal chamber, but had only infiltrated the floor and external wall which was removed. The pterygoid processes of the sphenoid bone were also removed. The photograph in Fig. 3 shows the patient two weeks after operation, and Figs. 4 and 5 show the obturator, which was made by

Dr. W. R. Roe, and introduced within three weeks from the time of the operation. Fig. 6 shows a cast made from an impression of the roof of the mouth taken three weeks after the operation. The flap of soft tissue has united to the edge of the median border of the horizontal plate of the right superior maxilla for some little distance back of the alveolar process.

The union occurred incidentally from the tissues being in close apposition, and this would be of considerable advantage to the patient if he could not have an obturator introduced, and it in no way interfered with the success of the obturator.

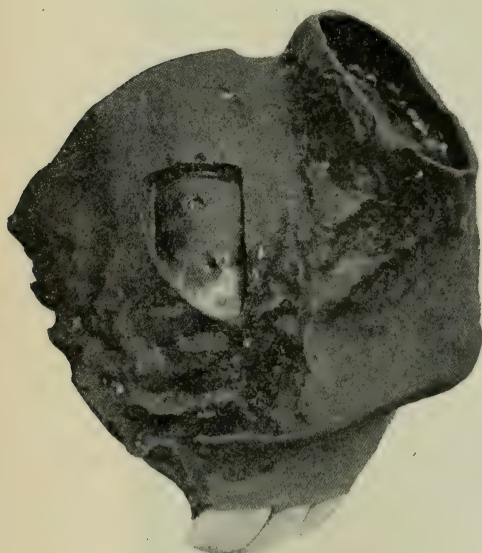


Fig. 4.



Fig. 5.

In complete excision of the superior maxilla, in cases in which the overlying soft parts are involved and have to be excised, the incision is governed by the amount of involvement. In these cases, the eye, as a rule, has to be sacrificed, and sometimes the nasal septum. In making the incision, if the alæ of the nose and upper lip and the soft palate are not involved, they should always be left intact; the practicability of this will be shown in an illustrated case. This operation is done only as a palliative measure, but is justifiable if the patient's condition is such to afford a reasonable hope of surviving the operation.

The report and illustrations of the following case show the

result of the operation of excision of the superior maxilla with the involved soft parts, and also demonstrates what can be done to correct the resulting deformity by artificial means. M. G., aged 50. For several months previous to January, 1894, she had a catarrhal discharge from left nasal chamber, and complained of a sense of soreness in the left side of face, and numbness of the upper teeth of same side. In January, 1894, a small nodule first appeared on the inner aspect of lower left eyelid. It slowly developed until the summer of 1895, when it began to develop rapidly, especially in a downward and outward direction. It gave her only slight pain. On admission to the hospital, November 11th, 1895, the facial portion of the tumor measured three-and-a-

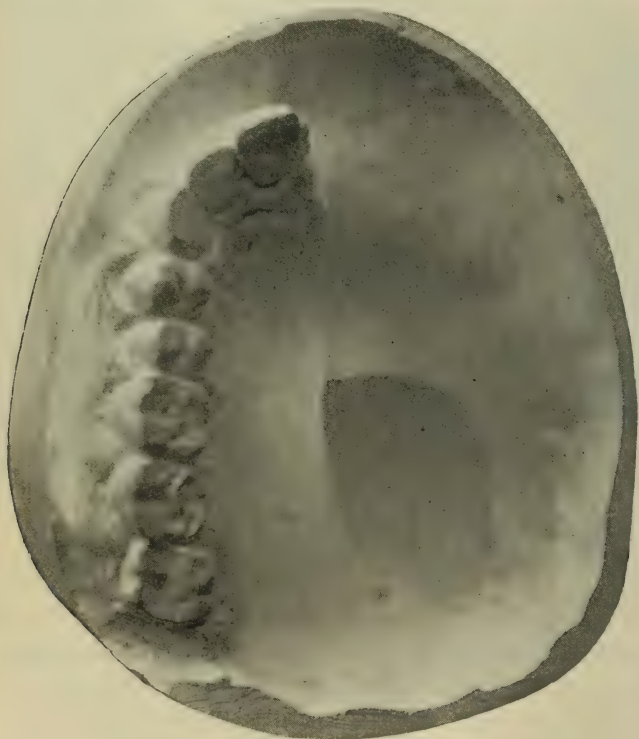


Fig. 6.

half inches vertically, two-and-a-half inches transversely, and one-and-a-half inches in elevation, and nine inches in circumference. The left nasal chamber was completely obstructed; the tumor extended from the lower border of the eye to the line of the mouth, and from the side of the nose to beyond the malar emi-

nence. The alveolar process was involved in the growth, and there was also considerable extension into the pterygoid fossa.

Operation November 12th, 1895, by Professor W. W. Keen, who very wisely preserved the alæ of the nose and upper lip with angle of mouth and soft palate; this precaution proved of the greatest benefit in the fitting and retaining of the obturator. All the tissues of the orbit had to be removed, and as the frontal sinus was found to be involved for about one inch the outer plate was removed, and the sinus curetted. The accompanying photograph (Fig. 7) shows the condition of the wound several



Fig. 7.

months after the operation, when the patient returned to have the obturator made.

The obturator was made by Dr. W. R. Roe, and the photograph, Fig 8, shows the patient with the obturator in position. The obturator which was made of vulcanized rubber formed a roof for the mouth, an outer wall for the left nasal chamber, and a facial and orbital surface. A socket was made in the orbital surface into which was placed an artificial eye. To Mr. Borsch,

optician, we are indebted for valuable assistance in selecting and adjusting the artificial eye. This patient had been wearing spectacles, and they were adjusted to assist in retaining the upper portion of the obturator in position. A small projection of the plate extended beneath the alæ of nose and angle of mouth, and nothing further was necessary to hold the obturator securely and comfortably in place. The obturator had thin walls and a cavity corresponding to the maxillary sinus, which made it resemble very closely the superior maxillary bone. The facial surface was very cleverly painted in flesh color by Mr. Charles B. Cox, artist, and the effect was so good that to a casual observer



Fig. 8.

nothing unusual was noticed. To Mr. Cox I am also indebted for the excellent photographs of this case. This patient was enabled to talk almost as distinctly as ever, and she wore the obturator with the greatest comfort and satisfaction until the time of her death, which occurred nearly two years after the operation.

Case four is that of a patient from whom consent for operation was not obtained, and will illustrate the progress of these cases without surgical interference. I regret very much that I did not secure a photograph of this patient when she first came under observation. M. Y., aged 54, was admitted to the hos-

pital November 23d, 1897. About one year previous to this time she began to have obstruction of the left nasal chamber, and a sense of numbness in the upper teeth of the left side. She first began to have pain in the left side of the face and posterior portion of the left eye about six weeks previous to admission. On admission there was marked protrusion or exophthalmos of the left eye, some bulging over the region of the left maxillary sinus and tenderness on pressure. The first and second molar was slightly tender to touch and somewhat loose. The left nasal

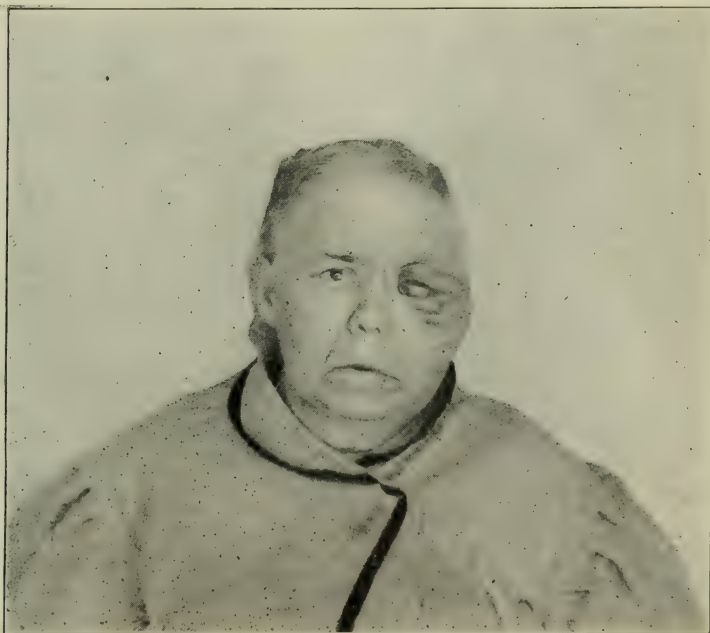


Fig. 9.

chamber was completely obstructed. A short time after admission a small portion of the tumor from the nasal chamber was removed for microscopic examination, and proved to be a mixed-cell sarcoma. About the middle of January, 1898, a small nodule first appeared in the lower eyelid. The growth gradually increased, and Fig. 9 shows the condition about four months after admission. Fig. 10 shows the patient two months later. Death occurred from exhaustion and sepsis, which was somewhat influenced by several small hemorrhages, ten months after first coming under observation, and twenty-two months from the very earliest recognition of symptoms.

Before concluding the surgery of these growths, it will be well to consider whether there are any surgical measures other than excision of the growth itself which afford a temporary check to the progress of the disease, and postpone, if only for a short time, a fatal termination. There are patients who shrink from radical surgical treatment, but who would consent to other measures less bloody or disfiguring. Experience has shown that the vascularity of the tumor is in proportion to the rapidity with



Fig. 10.

which it develops. This has led in many cases to the ligation of the main blood supply of the parts. In such cases ligation of the external carotid can be done with but slight annoyance to the patient, and should be resorted to.

Parenchymatous injections of various drugs have been extensively employed, and their use has been advocated by very eminent men, but the results have not been such as to make the procedure justifiable. There are special dangers consequent upon these injections; as a rule they excite inflammatory reac-

tion, and also very frequently cause the cellular elements of the tumor to be detached, and in this way cause metastasis. In some cases fat emboli causing sudden death have been reported, especially where agents had been injected, which caused coagulation; in other cases, infection has been produced, resulting in cellulitis and pus formation. The only exception to the interdiction of the injections is in the use of sterile cultures of streptococcus erysipellatus. With this some cases improved, others received no benefit. This treatment has been instituted as a result of observations made upon many cases in which an intercurrent attack of erysipelas took place with coincident temporary cessation of the growth; a few cases are reported in which the tumor disappeared. The serious disturbance to the general health resulting from the attack of erysipelas, and a fatal termination in not a few instances are against the employment of active cultures of the streptococcus. This danger is, however, happily overcome by the employment of sterile cultures, and the results as reported by Coley, Bull and Senn, have been equally successful.

MEDICAL TREATMENT.

Medical treatment must be considered, but with a proper understanding of its field of usefulness. "No kind of internal medication has any influence whatever in limiting tumor growth, much less in causing the disappearance of the tumor" (Senn). Internal medication should be directed in all cases to improving and sustaining the general health, and to meeting any complications that may arise. When pain develops, opium, preferably acetum opii, as recommended by Hearn, should be given in rapidly-increasing doses, as the patient develops a tolerance to the drug, and the pain steadily increases in intensity.

COMPLICATIONS AND SEQUELÆ.

The immediate dangers consequent upon a radical operation are such that they demand our consideration. Shock is sometimes severe, but seldom results fatally, and can be greatly lessened by the administration of saline transfusion during or immediately following the operation. Secondary hemorrhage sometimes occurs, and if not promptly controlled may become serious. Secondary infection cannot always be prevented in spite of the strictest antiseptic precautions, and a severe cellulitis or an attack of erysipelas may cause death. Meningitis may also

occur, and is always a serious complication. One case came under my observation in which the horizontal plate of the ethmoid was involved, and had to be removed, exposing a portion of the dura about one-and-one-half inches long. Meningitis occurred and caused death on the fourth day.

Broncho septic or deglutition pneumonia not infrequently occurs, and the greatest care should be exercised to avoid this complication by preventing wound fluids from gaining entrance to the trachea during or following the operation. When it does occur it should be treated on general principles.

The ultimate result from the surgical treatment of these cases is unfortunately less successful than the results obtained by the surgical treatment of malignant disease in other portions of the body. Butlin having collected sixty-four cases in which the result is recorded, was able to consider only four cases as successful (that is, having remained cured for three years). The prospects for ultimate relief according to other reports are not quite so gloomy, and it is to be hoped that in the future the early recognition of sarcoma of the superior maxilla involving the maxillary sinus and its early and complete excision will give more encouraging results.

ABSTRACTS AND SELECTIONS.

INFECTION OF THE FACIAL AND CERVICAL LYMPHATIC GLANDS AS A RESULT OF DENTAL LESIONS.

Charles B. Porter, D.D.S.

Read before the San Francisco Dental Association, December 12th, 1898.

This subject was suggested by the case submitted to you at the last meeting, being a condition new to me; and since, from my limited experience, I cannot hope to find a subject of interest to the older members of the society, I must ask their tolerance and address myself to those who, like me, are but beginning.

In the case referred to the patient came to me in August and stated that a month earlier a tooth had abscessed, and designated the right superior sixth year molar.

There was a large gold filling in the anterior ocluso-approximal portion faulty at the cervical border.

The tooth was of normal color, but failed to give response to ice and to the hot blast from the chip blower.

The filling was removed, and the pulp chamber entered with a bur, and found to be absolutely empty and dry, as were the canals in the palatal and disto-buccal roots.

The mesio-buccal root was impenetrable beyond one-eighth inch, and was opened with a 50 per cent. solution of sulphuric acid and a small Donaldson cleanser.

No pus was met, but there was a strong odor of hydrogen sulphide. The usual treatments were made as indicated, and the canals apparently rendered aseptic and filled with chloro-percha and the cavity filled with gutta-percha.

Two weeks later the patient returned with a small "lump" in the substance of the cheek, which was recognized as an inflamed lymphatic ganglion.

The canals were at once opened by use of oil of eucalyptus and a cleanser and treatment resumed.

The ganglion was at this time the size of a small bean and quite painful under pressure. Counter-irritation had no effect, and the patient being a homeopath, was referred to her physician for constitutional treatment, without result.

Artificial communication was obtained with the apices of the buccal roots and medicines forced through.

In the meantime the buccal ganglion had enlarged to the size and shape of a large almond, and the submaxillary ganglia had become involved and increased to the size of a hen's egg, and were very painful to pressure. A sinus developed opposite the disto-buccal root, had closed and the gum became much swollen.

No pus was found upon incision. Judging the abscessed roots to be the cause, and finding the conditions did not yield, the tooth was extracted and the roots found much absorbed.

The socket was dressed and packed daily for several days when the wound seemed to heal comfortably.

To secure resolution of the ganglia a 20 per cent. aqueous solution of ichthyol was applied to the inside of the cheek upon a lambswool tampon several times daily, but with little or no effect.

About a week since, the gum appeared slightly inflamed and two sinuses developed.

Under an injection of 3 per cent. solution of eucaine the

gum was dissected back and a carious area exposed embracing the entire socket.

The carious bone was removed with a large rose bur, and the wound packed with iodoform gauze, and has since been washed out with pyrozone, followed by listerine, and packed daily, and seems to be progressing well.

Meanwhile an ointment of ichthyol and lanolin has been applied externally to the swellings, being rubbed in, while more spread upon lintine is bound on and allowed to remain over night with apparently good effect.

Pacific Medico-Dental Gazette.

DECROWNING TEETH AND IMMEDIATE EXTIRPATION OF PULP.

Dr. R. E. Sparks, Kingston, Ont.

I remember reading a few years ago an article upon crown and bridge-work, in which the essayist, describing the preparation of abutments, said that some recommended the decrowning and immediate extirpation of the nerve by punching it out with a wooden plug. He, however, advised anyone attempting the operation to perform it upon a weak female, or to be sure he, the operator, was in a good physical condition. He evidently wished to convey the idea that the operation would be so excruciatingly painful that the victim of the outrage would be prepared for fight.

The writer had either never tried the operation or, having tried it, had had an unfavorable case, or for some reason had been unsuccessful.

As this is the operation generally practiced for immediate pulp extirpation in case of decrowning it may be as well to refer to it here; and let me say that while a description of the operation sounds barbarous it is comparatively painless. It is nothing to be compared to the pain of extirpating with a broach a pulp of which a little of the upper end is not fully devitalized. To make the operation successful a few precautions are to be observed. For the information of any who may never have practiced the operation it may be well to briefly describe it.

With a disc in the engine cut a groove across the labial and palatal or lingual surfaces of the tooth to be decrowned, at the desired point.

Have prepared a few points of orange wood or hickory about two or three inches long. The ordinary wedgewood rods answer well. Make the points about the length, shape and size of the canal in the tooth to be operated upon.

Saturate them with some strong disinfectant. I have found pure carbolic acid very satisfactory. Have on hand a light mallet, also have the engine in position charged with a long pointed cone-shaped bur. Everything being ready, with a pair of excising forceps, one blade of which is placed in each groove previously made, the crown is removed. If the canal be found to have been exposed at or near its greatest diameter, one of the prepared points should be immediately inserted, and while held in position given a sharp, quick blow with the mallet. An additional light blow or two may be given to insure its advance to the apex of the canal.

If the plug be withdrawn, such of the pulp as may not have been forced out of the canal will be found adhering to the sides of the plug. The preparation of the canal for the post may be proceeded with at once. Indeed, some cut or twist off the plug and proceed to drill the post hole, leaving the plug as a filling for the apex. I have done this. An advantage of withdrawing the plug is, that if it has failed to reach the apex a broach or drill may be advanced.

If it be found when the crown is snapped off that the canal be not exposed at its greatest diameter it may be enlarged with the pointed engine bur and the extirpation proceeded with.

Whatever is to be done, however, must be done without delay. The shock to the nerve when the tooth is decrowned is so sudden, that the injury is not perceived at the seat of sensation. It frequently occurs in cases of accidents that severe injuries are sustained, as loss of fingers or toes, or wounds inflicted, without the victim being aware of the injury. Sensation soon returns, however, hence the necessity of haste in the removal of pulps in the case of immediate extirpation. This operation is only practicable in teeth having regularly shaped single root-canals, as the six anterior superior teeth and second bicuspid and the ten anterior lower teeth.

I can conceive of cases even among the teeth named where this operation could not be successfully performed—for instance, in case of crooked and irregularly-shaped roots, or in very small flat-shaped lower incisors where the nerve canal may be very

fine and ribbon shaped; or where a tooth may be largely decayed exposing the pulp above the point at which it is decided to decrown, or where the pulp had receded beyond the point at which it is decided to decrown.

In such cases the nerves would fail to receive the shock necessary to anesthetize them. In such cases the pulps may be anesthetized by cocaine applied and its action hastened by means of compression, or by cataphoresis.

Indeed, many recommend drilling into the tooth to be decrowned, as far as feasible, and applying cocaine as an anesthetic. But as the effect of cocaine cannot be forced through dentine except by cataphoresis, and very few have cataphoretic batteries and appliances, and as it is seldom feasible to expose a pulp, in a healthy tooth sufficiently to anesthetize by cocaine under pressure, we seem forced to resort to the first operation described. The *modus operandi* of anesthetizing a pulp by cataphoresis is no doubt familiar to many and may be better described by those who use this method of producing anesthesia.

The advantages of immediate root extirpation are various:

1. The saving of time. This is especially an object where a patient has come a distance and desires the work completed at the earliest possible moment.

2. The danger of toxic effects of arsenic are averted, and there is no danger.

3. The severe pain which sometimes follows the application of arsenious acid for devitalization of the pulp is avoided.

4. The danger of subsequent periostitis is reduced to a minimum.

Dominion Dental Journal.

CARBOLIC ACID IN SURGERY.

Dr. Seneca D. Powell read before the New York Medical Society a paper entitled "Carbolic Acid in Surgery." He said that he had discovered about five years ago that alcohol was a perfect antidote to carbolic acid, and that one could, with impunity, wash one's hands with 95 per cent. carbolic acid and allow it to remain on for a few seconds, if the hands were then rinsed off with alcohol. He also knew of two or three cases of carbolic acid poisoning in which alcohol had been given internally as an antidote to the acid. He had turned this discovery to account in the practice of surgery in various ways.

Mammary, ischiorectal, tuberculous abscesses, could be quickly and very efficiently treated by evacuating the pus, thoroughly cleansing the cavity, and then injecting successively strong carbolic acid, alcohol, and finally water. Bone abscesses could be similarly treated. The deformity and disability so common after cellulitis of the hand could, for the most part, be avoided by first injecting cocaine, then making a small incision, and injecting successively carbolic acid and alcohol, and dressing the part with wet carbolized compresses. He had succeeded in treating some very severe cases of empyema, both by irrigating and swabbing out the pleural cavity with strong carbolic acid. Even in very grave cases of erysipelas, the progress of the disease could be promptly checked by applying strong carbolic acid until the skin was whitened, and following this with alcohol. In the discussion Dr. A. M. Phelps spoke of his good results in the treatment of suppurating tuberculous joints by the injection successively of carbolic acid, alcohol, and water. Dr. Carter S. Cole said that the continuous application of a 2 per cent. solution of carbolic acid would be found most efficacious in cases of ivy poisoning.

Phila. Med. Jour.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

"PEACE WITH HONOR."

In connection with the report of the sixteenth annual session of the National Association of Dental Faculties, published in this number of the BRIEF, appears the statement that the difficulties which have for some time disturbed the former amicable relations between the National Association of Dental Faculties and the National Association of Dental Examiners have been adjusted.

This cannot fail to be a source of gratification to every member of the dental profession who is sincerely desirous of its educational advancement, and it is hoped and believed that both organizations will henceforth harmoniously coöperate in the furtherance of those objects which are the inspiring purpose of each, and for the accomplishment of which they are, united so potent, and disjoined, comparatively so ineffective.

It must be remembered that in all reform, progress never keeps pace with desire, because its eye is fixed on an ideal and longed for end, and both eye and heart grow weary watching the slow sweep of time's recording shadow across the dial of the years.

In the cycle of great movements the hours are long 'twixt dawn and noon. And yet how far beyond its dawn has the educational movement in dentistry already sped.

"Without haste and without rest" may it still speed onward. And to all of us may there come a spirit not forgetful of the gains of yesterdays or of to-day, in impatience for the coming of a better morrow; a spirit not too intolerant of vacillation where we had hoped for steadfastness, or of weakness where we had looked

for strength; and ever mindful that in all social and educational progress it is often well for the zealous to tarry a little upon the tardier pace of the prudent, remembering that to each from each some good may come,—to prudence a more impelling inspiration, to zeal a wiser conservatism.

THE NATIONAL DENTAL ASSOCIATION.

The second annual meeting of the National Dental Association, held at Niagara Falls during the first four days of August, 1899, began and ended under conditions and with results most encouraging to the friends of the organization, and most hopeful for its future usefulness and perpetuity.

The plan of submitting all papers to the sections having charge of the subject to which they severally relate, to determine their fitness for presentation to the general body, has demonstrated its value and usefulness. All the papers read were excellent, and many of a high order of merit.

The list of these was so large that even a synopsis, much less an analysis or review of their contents is at this time impossible; they will in due course appear in the official organ of the Association and in its published proceedings.

It will not be an invidious distinction, however, to make special mention of the paper of Professor T. W. Brophy, of Chicago, on "The Radical Cure of Congenital Cleft Palate, Illustrated by Cases in Practice." Nine years ago Professor Brophy first performed upon an infant ten days old the operation which has revolutionized surgical practice in that class of cases. He was met with a storm of protest and derision, the echoes of which have hardly yet subsided; but which must now be forever silenced before the irresistible logic of demonstrated results.

The patient, a girl now nine years old, upon whom his first operation was performed, was brought before the Association, every member of which had full opportunity to satisfy himself that she had been relieved of a horrible deformity (for the case had originally nearly all the worst features possible to its class);

that a most satisfactory condition of the dental organs had been secured, and that speech was almost perfect, as demonstrated by the utterance of words bristling with consonantal difficulties, proposed as tests by different members of the Association. Every member present having experience in that class of cases was fully satisfied that such a result would have been absolutely impossible had the operation been deferred to the usual advanced period in the life of the child.

The conviction that Professor Brophy's operation must now be received as accepted practice was deepened by the presentation of a male infant ten weeks old, upon whom an operation for cleft of the lip and the hard and soft palate was performed at the age of two weeks, the wire sutures and suture-plates being still in position. The hard palate was found fully healed, and the jaw almost normal in size and shape; while the edges of the cleft in the soft palate were in such close contact that their union when attempted at a future operation will not present the slightest difficulty.

Professor Brophy's operation is thus vindicated, as he himself is vindicated for its practical application under conditions which required rare surgical courage, as well as scientific prevision; for had he failed, condemnation and opprobrium, and in no scant measure, would have been his portion. As it is he has added fresh lustre to the achievements of dental and oral surgery, and has bestowed upon humanity a boon which must link his name with the benefactors of mankind.

The paper of Professor Thomas Fillebrown, of Boston, entitled, "A Study of Hare Lip and Cleft Palate," was also of much interest, and was brilliantly illustrated with large and well executed diagrams and drawings in which certain details in the operation original with himself were fully and most convincingly demonstrated.

A word too should be said for the remarkably fine drawings, of heroic size, presented by Dr. R. Ottolengui, of New York, in illustration of his paper advocating the correction of prognath-

ism at a period in the life of the subject much earlier than has usually been considered advisable.

The series of lantern slides by Professor M. H. Cryer, of Philadelphia, illustrating "Some New Points in the Anatomy of the Face and Jaws," to which allusion was made in the August BRIEF, in connection with the recent meeting of the Pennsylvania State Dental Society, was again reproduced and aroused the admiration and interest of all present. It is much to be regretted that for want of time a large number of papers failed of a reading.

The next annual meeting of the Association will be held during the last week in June, 1900, at Old Point Comfort, Va. Professor B. Holly Smith, of Baltimore, Md., was elected president for the ensuing year.

THE INTERNATIONAL TOOTH CROWN COMPANY LITIGATION.

Through the daily press the fact has been announced that on Monday, July 31st, 1899, Judge Townsend in the United States Circuit Court of New York rendered a decision in favor of the International Tooth Crown Company as against James Orr Kyle, a dentist, which confirms the validity of the crown and bridge patent held by the company.

Although the patent has expired, it is stated that the company purpose at once taking proceedings against such dentists as have in past years infringed upon its asserted rights, and secure by legal process a rendering of accounts and the payment of the royalties to which they claim to be entitled. It is asserted that by these means the company will be able to mulct the dental profession to the extent of several million dollars.

Thus those dentists who have been infringers in past years and have not seen fit to unite with the Dental Protective Association, and thus contribute to the funds always necessary for defensive as well as offensive legal measures, will have an opportunity of making settlement upon the best terms they are able to secure, as the Dental Protective Association most certainly will

not defend those who are not its members, and who have selfishly withheld their aid in its long fight against a grasping monopoly.

In this connection it may be stated that the Dental Protective Association was not represented in the case above mentioned and took no part in its defence.

ASSOCIATION PROCEEDINGS.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The sixteenth annual session of the National Association of Dental Faculties was held at Niagara Falls, commencing Friday, July 28th, 1899.

The following colleges were represented, as noted:

Birmingham Dental College, Birmingham, Ala.—T. M. Allen.

University of California, Dental Department, San Francisco, Cal.—A. A. d'Ancona.

Colorado College of Dental Surgery, Denver, Col.—J. S. Jackson.

University of Denver, Dental Department, Denver, Col.—A. H. Swains.

Columbian University, Dental Department, Washington, D. C.—J. R. Hagan.

Howard University, Dental Department, Washington, D. C.—A. J. Brown.

National University, Dental Department, Washington, D. C.—A. D. Cobey.

Atlanta Dental College, Atlanta, Ga.—H. R. Jewett.

Dental Department of Atlanta College of Physicians and Surgeons, Atlanta, Ga.—Frank Holland, S. W. Foster.

Chicago College of Dental Surgery, Chicago, Ill.—Truman W. Brophy.

Northwestern University Dental School, Chicago, Ill.—Theo. Menges.

Indiana Dental College, Indianapolis, Ind.—Geo. E. Hunt.

State University of Iowa, Dental Department, Iowa City, Ia.—W. S. Hosford.

Louisville College of Dentistry, Louisville, Ky.—H. B. Tileston.

Baltimore College of Dental Surgery, Baltimore, Md.—M. Whilldin Foster.

University of Maryland, Dental Department, Baltimore, Md.—John C. Uhler.

Boston Dental College (Tufts College Dental School), Boston, Mass.—Charles P. Thayer.

Harvard University, Dental Department, Boston, Mass.—Thomas Fillebrown.

College of Dental Surgery of the University of Michigan, Ann Arbor, Mich.—J. Taft, N. S. Hoff.

Detroit College of Medicine, Dental Department, Detroit, Mich.—G. S. Shattuck.

University of Minnesota, Dental Department, Minneapolis, Minn.—W. P. Dickinson.

Kansas City Dental College, Kansas City, Mo.—J. D. Patterson.

Western Dental College, Kansas City, Mo.—D. J. McMillen.

Marion-Sims College of Medicine, Dental Department, St. Louis, Mo.—J. H. Kennerly.

Missouri Dental College, St. Louis, Mo.—A. H. Fuller.

University of Omaha, Dental Department, Omaha, Neb.—A. O. Hunt.

University of Buffalo, Dental Department, Buffalo, N. Y.—William C. Barrett, R. H. Hofheinz.

New York College of Dentistry, New York city.—Faneuil D. Weisse.

New York Dental School, New York city.—John I. Hart, Roderick M. Sanger.

Cincinnati College of Dental Surgery, Cincinnati, O.—G. S. Junkerman, W. T. McLean.

Ohio College of Dental Surgery, Cincinnati, O.—H. A. Smith.

Western Reserve University, Dental Department, Cleveland, O.—H. L. Ambler.

Ohio Medical University, Dental Department, Columbus, O.—Otto Arnold.

Pennsylvania College of Dental Surgery, Philadelphia, Pa.—Wilbur F. Litch.

Philadelphia Dental College, Philadelphia, Pa.—S. H. Guilford.

University of Pennsylvania, Dental Department, Philadelphia, Pa.—James Truman, Edward C. Kirk.

Pittsburg Dental College, Pittsburg, Pa.—Walter H. Fundenburg.

School of Dentistry, Central Tennessee College, Nashville, Tenn.—G. W. Hubbard.

University of Tennessee, Dental Department, Nashville, Tenn.—L. G. Noel.

Vanderbilt University, Dental Department, Nashville, Tenn.—Henry W. Morgan.

Tacoma College of Dental Surgery (North Pacific Dental College), Portland, Ore.—George H. Chance.

Milwaukee Medical College, Dental Department, Milwaukee, Wis.—George V. I. Brown.

Royal College of Dental Surgeons of Ontario, Toronto, Canada.—J. B. Willmott.

The treasurer reported that the Dental Department of Tennessee Medical College, of Knoxville, Tenn., was no longer in existence, having been absorbed by another school.

The Tacoma College of Dental Surgery, having removed to Portland, Ore., was given authority to change its name to North Pacific Dental College.

The trustees of Boston Dental College accredited Dr. C. P. Thayer as delegate to explain to the association that they had transferred the institution, with all its appurtenances, to Tufts College, and to request that the Tufts College Dental School be permitted to make application for membership at this meeting. On motion it was ordered that Tufts College Dental School be accepted as a continuance of the old college, and that the change of name be approved.

The application for membership of the following schools, having been reported as regular by the Executive Committee, lie over for one year for final action:

Medico-Chirurgical College of Philadelphia, Dental Department, Philadelphia, Pa.

Central College of Dentistry, Indianapolis, Ind.

College of Dentistry, University of Southern California, Los Angeles, Cal.

Illinois School of Dentistry, Chicago, Ill.

Washington Dental College and Hospital of Oral Surgery, Washington, D. C.

Keokuk Medical College, Dental Department, Keokuk, Ia.

The Committee on Text-Books reported, recommending that the following be adopted: "Anatomy and Histology of the Mouth and Teeth," by I. N. Broomell, D.D.S.; "The Practice of Dental Medicine," by George F. Eames, M.D., D.D.S.; "Comparative Dental Anatomy," by A. H. Thompson, D.D.S. (recommended last year in proof); "Methods of Filling Teeth," second edition, by R. Ottolengui, M.D.S.

The committee had also examined "Chemistry and Metallurgy Applied to Dentistry," by Vernon J. Hall, Ph.D.; and while admirable, and containing many excellent features, the committee believed it unwise to recommend it as a text-book, inasmuch as there are already two excellent works on the same subject on the list.

Of "Interstitial Gingivitis, or so-called Pyorrhea Alveolaris," by Eugene S. Talbot, M.D., D.D.S., the committee reported that it contained evidence of laudable and extensive research, but the subject is still a matter of so much controversy and diversity of opinion as to make undesirable a text-book upon it at the present time.

The committee also suggested the removal of Clifford's

"Manual of Recitations," adopted in 1892, and Burchard's "Compend of Pathology," adopted in 1897.

The following resolutions, laid over under the rules from 1898, were adopted:

Offered by Dr. Allen:

Resolved, That it is the sense of this association that the present method of bestowing scholarships is no longer called for, and is detrimental to the best interests of the profession, and that hereafter no college of this association shall grant either free or beneficiary scholarships not absolutely made obligatory in their charter.

Offered by Dr. Barrett:

Resolved, That it shall be the duty of the secretary of this association to present at the opening of each annual session a list of the colleges, members of this association, who have been unrepresented for two years, that proper action may be promptly taken.

The resolutions of Drs. Allen and d'Ancona concerning the attendance of students were substituted by the following, offered by Dr. Willmott, which was adopted:

Resolved, That students in attendance at colleges of this association, to obtain credit for a full term, must be and remain in attendance until the close of the session.

In accordance with this action, Rule 4 was amended to read as follows:

4. In cases where a regularly matriculated student, on account of illness, financial conditions, or other sufficient cause abandons his studies for a time, he must reënter his college at the same or a subsequent session, or where, under similar circumstances, he may desire to enter another college, then with the consent of both deans he may be transferred.

Rule 9 was amended to read as follows:

ADMISSION OF UNDERGRADUATES OF MEDICINE.

9. Undergraduates of reputable medical colleges who have regularly completed one full scholastic year of a six months' term and passed a satisfactory examination in the studies of the freshman year may be admitted to the junior grade in colleges of this association, subject to other rules governing admission to that grade.

The Committee on Conference with the National Association of Dental Examiners reported, as the result of several conferences held with a similar committee from the Examiners' Association, that an agreement had been reached concerning the matters which had been in controversy between the two associations for several years. The report was adopted. [The basis of the agreement, with some account of the difficulties referred to, will be found at the end of this report.]

The following resolution was unanimously adopted:

Resolved, That the thanks of the National Association of Dental Faculties are due to the Chicago College of Dental Surgery for the courage and persistence with which it has maintained what we believe to be a correct principle, and that we regard the placing as unrecognized and disreputable in the newspapers and otherwise of one of the oldest and best of our professional teaching institutions an injustice that demands complete rectification.

Dr. Barrett offered the following, which were adopted:

Resolved, That the commonly accepted Code of Ethics regulating the

conduct of practitioners in their relations with other practitioners be approved and made obligatory upon the dental colleges of this association in their relations with other colleges.

Resolved, That the section of the Code which refers to public advertisements be interpreted to forbid the advertising of the infirmaries of dental colleges in any manner that might be construed to be unprofessional if done by a practitioner.

Resolved, That as dental colleges should in every practicable manner impress the importance of ethical conduct upon their students, and should themselves set a good example in this particular, their public advertisements should be confined to a simple statement of the location of the schools, the date of opening and closing, with any other really essential facts, all details being reserved for the annual announcement, which itself shall not violate the usually accepted ethical tone.

Dr. Taft offered the following:

Resolved, That a Commission, consisting of three persons, be appointed, whose duty it shall be to take cognizance of, investigate, and advise with any parties contemplating the establishment of a new college or the reorganization of an old one.

In the performance of the duties of this Commission it shall be competent to take into consideration the following points, viz.:

The consideration of any proposed new dental college; taking into account all the circumstances that attach to it; the motive that prompts such an organization; the need for it; the proposed locality; the character and ability of those who propose to conduct it; the sufficiency of the resources that may be available for its establishment, and whether, on the part of the promoters, there is a just appreciation of that which is required for such an institution.

The attainment of full knowledge on these points would enable the Commission to advise wisely.

It would be the duty of this Commission to report to this body at each annual meeting.

The resolution was adopted, and it was ordered that the commission be elected with the other officers.

The following amendment to the constitution was adopted:

Change Article V to read as follows:

Article V. The Executive Committee shall consist of five members, three of whom shall be elected annually; the two receiving the higher number of votes shall hold office for two years each. The Executive Committee shall have power to designate the time and place of meeting, make preparations for same, and transact such other business as usually devolves upon such committee. That five members be elected this session, the two receiving the higher number of votes to serve for two years, the other three for one year each.

On motion of the Executive Committee, it was ordered that colleges making application for membership in this body shall have present a copy of their annual announcement, and that a duly authenticated representative of the school be present at the meeting; without which the application shall not be considered.

It was decided that the change from six to seven months' terms, which goes into effect with the session of 1899-1900, should apply to all students in colleges of the association, even though the students may have previously attended under the six months' rule.

On motion of Dr. Barrett, it was ordered that a Committee

on Law, to consist of three members, be elected to serve as a standing committee, which shall be authorized to levy such assessments upon the members of the association as may be necessary for the payment of past legal expenses and such as may accrue in the future in the suppression of the issue of fraudulent diplomas. Such assessments to be lodged with the treasurer, and paid upon the order of the Committee of Law. It was also ordered that all legal matters which may arise in connection with the National Association of Dental Faculties shall be referred to this committee.

The Committee on Foreign Relations, in concluding the report of its work for the year, offered the following resolutions, which were adopted:

Resolved, That the Foreign Relations Committee be instructed to take any steps which they may deem advisable for the putting an end to the issuing of fraudulent and irregular degrees, and to this end are authorized during the coming year to use any funds in the treasury of the association upon the approval of the Law Committee.

Resolved, That the European Advisory Board of the Foreign Relations Committee be, and is hereby, invited each year to send a delegation to attend the annual meeting of this association, and that such delegation be accorded seats in the meetings of the association, with all the privileges of debate.

Resolved, That no student coming from Europe shall be received by any member of the association until his credentials shall have been approved by the members of the European Advisory Board for the country from which he claims to come.

Resolved, That the Committee on Foreign Relations be authorized to appoint Advisory Boards for countries outside of Europe, whenever in their judgment it is advisable to do so, and report any such action at the next succeeding meeting of this association.

Resolved, That the Foreign Relations Committee be given jurisdiction in all foreign American dental educational matters, subject always to the approval of the National Association of Dental Faculties, to which a full written report shall be submitted annually.

Following are the members of the European Advisory Board, so far as appointed:

Great Britain—Wm. Mitchell, W. E. Royce, and B. J. Bonnell.

Holland and Belgium—J. E. Grevers, Ed. Rosenthal, and C. van de Hoeven.

Denmark, Norway and Sweden—Elof Förberg.

Germany—W. D. Miller, C. F. W. Bödecker, and — Hesse.

Italy and Greece—Albert T. Webb, Tullio Avanzi, and A. V. Elliott.

France—J. H. Spaulding, I. B. Davenport, and G. A. Rous-
sel.

Spain and Portugal— — Portuondo, Florestan Aguilar,
and — Thomas.

Switzerland and Turkey—L. C. Bryan, Theo. Frick, and
Paul Guye.

Japan, China and Corea—Louis Ottogy.

Australia and New Zealand—Alfred Burne.

The following resolution, offered last year, was again laid over for another year:

Offered by Dr. Hosford:

Resolved, That a four years' course in a reputable college leading to the degree of A.B., Ph.B., or B.S., or four years of biological work, be accepted as one year's credit in the colleges of this association, subject to other rules governing admission to second year grade.

Resolved, That students matriculated in both a collegiate and dental department of a university, having completed the work of the first year in dentistry during the four year collegiate course, may, on graduation with collegiate degree, be given full credit for one year in colleges of this association.

The following, offered by Dr. Foster, was referred to the Executive Committee, to be reported upon next year:

Resolved, That when a student fails in any part of the requirements for obtaining his final degree, such student must hold over till the next regular course, during which time he may reënter and remove such conditions by completing his work, and can only apply for his degree at the close of term as announced in the catalogue of such school.

The following resolutions lie over under the rules till next year:

Offered by Dr. Barrett:

To change Rule I to read as follows:

PRELIMINARY EXAMINATIONS.

1. The following preliminary examination shall be required of students seeking admission to colleges of this association:

a. The minimum preliminary educational requirements of colleges of this association, after the session of 1901-1902, shall be a certificate of entrance into the third year of a high school, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction.

b. Nothing in this rule shall be construed to interfere with colleges of this association that are able to maintain a higher standard of preliminary education.

Offered by Dr. Weisse:

Resolved, That Rules 8, 9, and 10 of the Code of Rules be rescinded, and the following be substituted therefor:

That advanced standing to the junior or senior classes of institutions of this association shall only be upon certificate of one or two sessions' attendance, respectively, in an institution belonging to this association.

Offered by Dr. Truman:

Resolved, That members of this association violating the rules of this body shall, upon conviction, be fined not less than one hundred dollars for each offense, or be subject to censure, suspension, or expulsion, at the pleasure of the association.

Offered by Dr. Barrett:

Resolved, That the Executive Committee be instructed that, except under what they shall decide to be unusual or extraordinary circumstances, and which in their report they shall detail to the association, they shall not report favorably any application for the admission of a new college in the following instances:

1. When there has not been actually secured and bought or leased for a term of not less than three years, and fitted up with all required equipments, a sufficiently commodious and convenient building, entirely

adequate to the needs of not less than one hundred students. Such equipment shall include not only the laboratories, infirmaries, etc., with proper chairs, benches, and all apparatus required for complete practical dental instruction, but the rooms and fittings necessary for scientific training, with apparatus and equipments necessary for the proper teaching of bacteriology, histology, microscopy, chemistry, and such other scientific studies as should form a part of an advanced dental curriculum of study.

2. When the character and attainments of its faculty, which must already have been named, and a list of the members of which, with the respective positions they are to occupy, shall be embodied in the application presented, are not such as to give assurance that the school will be conducted in a manner to reflect credit upon the dental profession, and to insure complete and adequate instruction in all branches of a broad dental curriculum of study.

3. When the proposed dental college or department is evidently and unmistakably intended primarily for the purpose of sustaining or strengthening another existing institution with which it is to be allied.

4. When the city or town in which such college is to be located already contains a college, or colleges, for dental teaching, of acknowledged efficiency, liberal character, and ethical standing, sufficient in their opinion for the promotion of the best interests of dentistry and the dental profession.

Offered by Dr. Guilford:

Resolved, That while examinations for progress should continue to be held annually upon the subjects taught during the year, no final examinations shall be held until the close of the third year.

Dr. Taft, from the Committee on Curriculum, submitted as the report of his committee the following:

SCHEDULE OF STUDIES.

FIRST YEAR.	Hours per week.	SECOND YEAR.	Hours per week.	THIRD YEAR.	Hours per week.
Anatomy and Dis- section	2	Anatomy, Regional	1	Therapeutics	1
Physiology	2	“ Comparative	1	Pathology	1
Chemistry, Inor- ganic	2	Physiology	2	Surgery, General..	1
Chemistry, Labor- atory	4	Chemistry, Organic	2	“ Oral.....	1
Dental Anatomy..	2	“ Laboratory	4	Jurisprudence	1½
Prosthetic Technic	10	Metallurgy, Didac- tic	1	Orthodontia, Di- dactic	1
Histology, Didactic	4	Metallurgy, Labor- atory	2	Orthodontia, Prac- tical	1
“ Laboratory }		Materia Medica...	1	Operative Dentis- try	2
Materia Medica...		Operative Technic	4	Prosthetic Dentis- try	2
Comparative Anat- omy		Bacteriology, Di- dactic	4	Electricity	
		Operative Dentis- try, Didactic....	2	Ethics	
		Orthodontia, Tech- nic	1	History	
		Pathology	2		
		Orthodontia, Di- dactic			

INFIRMARY.

Prosthetic Dentis- try	5	Prosthetic Dentis- try	6
Crown and Bridge- Work	3	Operative Dentis- try	15
		Crown and Bridge- Work	4

The following were elected officers for the ensuing year: Jonathan Taft, President; B. Holly Smith, Vice-President; J. H. Kennerly, Secretary; Henry W. Morgan, Treasurer; S. W. Foster, J. B. Willmott, Executive Committee for two years; H. B. Tileston, Theo. Menges (Chairman), S. H. Guilford, Executive Committee for one year; W. T. McLean, J. D. Patterson, W. S. Hosford, *ad interim* committee; Truman W. Brophy, Edward C. Kirk, Albert H. Fuller, Commission on Proposed New Colleges; A. O. Hunt, Henry W. Morgan, W. C. Barrett, Committee on Law.

The newly-elected President appointed the following committees: T. M. Allen, W. S. Hosford, W. P. Dickinson, G. S. Shattuck, J. G. Templeton, Committee on Schools; A. J. Brown, John I. Hart, Thomas E. Weeks, Edward C. Kirk, Thomas Fillebrown, Committee on Text-Books; W. C. Barrett, J. D. Patterson, T. W. Brophy, S. H. Guilford, H. W. Morgan, Committee on Foreign Relations; N. S. Hoff, G. V. I. Brown, Committee to Secure Papers to be Read at the Next Annual Meeting; S. H. Guilford, W. F. Litch, N. S. Hoff, A. H. Fuller, C. L. Goddard, Committee on Curriculum.

The Executive Committee reported that it had decided to adopt the suggestion of Dr. Willmott to convene the next meeting on the day of the adjournment of the National Dental Association, at the same place.

Adjourned to meet at Old Point Comfort, Friday, June 29th, 1900.

EUROPEAN ADVISORY BOARD.

An important fact in connection with the meeting of the National Association of Dental Faculties was the presence of three of the members of the European Advisory Board of the Committee on Foreign Relations: Drs. Lyman C. Bryan, of Basel, Switzerland; John E. Grevers, of Amsterdam, Netherlands, and William Mitchell, of London, England.

Dr. Grevers, in speaking of the reception to advanced standing of students from foreign countries, probably struck the keynote of the entire situation. He was impressed, he said, with the idea that the foreigner comes to this country to study dentistry for one of two reasons: First, as a graduate, or as one having fulfilled the requirements in his own country, who desires to still further develop his manipulative ability by the acquirement of American methods; or, second, because he cannot fulfill the requirements in his own country, and hopes to secure something here which will enable him to return home and practice. So that if the applicant from a European country is not supplied with

the proper certificates the colleges should be cautious about receiving him to advanced standing.

COLLEGE VISITATIONS.

The proceedings of the late meeting were varied by two pleasant, albeit unusual, incidents.

The first of these was a trolley ride of the members of the association and their friends to Buffalo, twenty-five miles away, and return, as the guests of the Dental Department of the University of Buffalo. Arrived at Buffalo they were taken to the college building, where an ample collation was served, accompanied by several felicitous speeches. The various departments of the college were then inspected and pronounced good, after which the party again boarded the trolley cars and were taken to view the grounds where the Pan-American Exposition is to be held two years hence. Then came the return to Niagara Falls, which was accomplished without incident and without fatigue, every one expressing his gratification over the outing.

The second was of the same nature, but involved a visit to a foreign land. The Royal College of Dental Surgeons of Ontario invited the members of the Faculties Association and also those of the National Association of Dental Examiners to visit the college and view the city of Toronto. In response about seventy-five persons took the train at Niagara Falls for Lewiston, where they boarded the steamer for the journey across Lake Ontario to Toronto. Arrived here a short walk brought them to McConkey's, where a fine collation was served and appropriately disposed of. Tally-hos and carriages then conveyed the party to various points of interest in the city, among others Parliament House, where they alighted and spent a short time admiring its beauty of architecture and internal arrangement and fittings. A short drive brought them to the Royal College of Dental Surgeons of Ontario, where they were assembled in the main lecture room, and speeches of felicitation and good-will followed; after which the visitors circulated through the building, inspecting the equipment of the college and having explained to them the methods of instruction in various branches. It was the universal opinion that the school was admirably equipped for the systematic instruction of students of dentistry. The entrance to the college was tastefully draped with the flags of Great Britain and the United States. From the college the party proceeded to the Foresters' Temple Café, where a second collation was served; after which they were driven to the steamboat landing. As the vessel moved off three cheers for the Royal College of Surgeons were given with a will. The return journey was made without mishap, and the excursionists unanimously declared they had had one of the most delightful outings of their lives.

AGREEMENT BETWEEN THE NATIONAL ASSOCIATION OF DENTAL FACULTIES AND THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The members of the dental profession will be glad to learn that the difference existing for some years between the National Association of Dental Faculties and the National Association of Dental Examiners have been reconciled. These differences have been the cause of much friction between the two bodies.

The cause of the trouble was the refusal of the colleges to accept various rules which have crystallized into what is known as Rule 8 of the Code of Rules, Sections 1 and 2, of the Examiners' Association, because the colleges were not consulted in its framing.

The attempted enforcement of this rule recently led to litigation in the State of Wisconsin. The State Board of Dental Examiners of that State refused to admit to registration the diplomas of the Chicago College of Dental Surgery, the Northwestern University Dental School, the Pennsylvania College of Dental Surgery, the Ohio Medical University Dental Department, the Philadelphia Dental College and others, on the ground that they did not, in their preliminary examination come up to the standard established by Rule 8, and demanded that graduates of these institutions presenting diplomas for registration should submit to examination by the Board as to their qualifications to practice dentistry.

This contention of the Board was resisted by a graduate of the Chicago College of Dental Surgery, who brought mandamus proceedings to compel the Board to accept his diploma. The Board moved to quash the proceedings, which motion was denied by the Court with leave to the Board to file its answer. The answer was filed and the case was in that condition at the time of the meeting of the two Associations at Niagara Falls on the 28th of July, 1899.

With a view to the adjustment of the difficulty committees of conference were appointed by the two bodies, which after going over the matters in dispute, agreed on the side of the National Association of Dental Examiners to recommend that Rule 8 be rescinded, that all colleges having membership in the National Association of Dental Faculties be placed upon the list of recognized schools, and that all litigation be withdrawn; and on the side of the National Association of Dental Faculties that a new rule governing the preliminary requirements for admission to the college courses should be adopted.

This action was ratified by the Association. The Examiners' Association adopted a new Rule 8, Sections 1 and 2 of which read as below, the remainder of the rule being substantially as before. Rule 8, new Sections 1 and 2:

"Sec. 1. Colleges desiring recommendation to the State Board by the National Association of Dental Examiners shall

make application for such recommendation through the Committee on Colleges, on blanks provided for that purpose. This rule to apply only to schools making application to the National Association of Dental Examiners for recommendation and such schools as may be dropped.

"Sec. 2. The following preliminary examination shall be required of students seeking admission to colleges recommended by this Association. The minimum preliminary educational requirements of colleges of this Association for the session of 1900 and 1901 shall be a certificate of entrance into the second year of a high school, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction, as adopted by the State Board of Missouri."

The Faculties' Association adopted the following rule governing the preliminary educational requirements of students:

"The minimum preliminary educational requirement of colleges of this Association, for the session of 1900 and 1901 shall be a certificate of entrance into the second year of a high school, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction.

"Nothing in this rule shall be construed to interfere with colleges of this Association that are able to maintain a higher standard of preliminary education."

The cause of friction being removed, the disputes which have arisen, there is every assurance will be speedily adjusted and the two bodies will thereafter work in harmony.



Practical Points.*

A Substitute for the Diamond Disk.—A small disk of thin copper, used with water or oil, will cut as perfectly as a diamond disk, and even more quickly.

Dr. Roberts, International Dental Journal.

Prevention of Irregularity.—When deciduous teeth are lost before the permanent teeth are ready to erupt, to prevent the adjacent teeth from traveling, or tipping, insert a vulcanite plate to occupy the space of the lost tooth, cutting it away from time to time to accommodate the erupting tooth.

Dominion Dental Journal.

Deep Cavities in the Permanent Teeth of Young Children.—Excavate conservatively, removing all the non-sensitive tissue, with the assurance that if properly aided nature will recalcify all softened dentin when sensitive living fibre remains. As these fibres were the original tooth-forming organs, so they are still able to rebuild the broken-down dentin under favorable conditions.

S. S. Stowell, Dental Cosmos.

Capsicum Bags.—Capsicum bags should be made with one side of rubber, to protect the cheek; the other of muslin, to permit the fluids of the mouth to enter, dissolve, and act on the tissues covering the root or roots of the teeth against which the muslin side of the bag is placed. The so-called capsicum plasters sold by drug stores are not very strong, and are really worthless for the purpose of counter-irritation.

Leo Greenbaum, International Dental Journal.

Treatment of the Permanent Teeth During Adolescence.—We recommend amalgam, or the combination of cement and amalgam, for buccal teeth and cement for the labial teeth of the permanent denture during adolescence—to be renewed as may be necessary until adult age, say 16 to 18 years, when gold can be safely inserted. These materials are thus employed during the growing years merely as an expedient until the dense texture of maturity shall have been attained. These deductions are from clinical observations from empirical practice, but the results accomplished fully justify the claims made for the method and the confidence with which it is recommended.

A. H. Thompson, Dental Cosmos.

* Compiled by Mrs J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Formaldehyde.—Prof. Ernest thinks that if instruments having no grooves are washed clean in a 1-100 solution, and put in a case in which is kept a piece of cotton saturated with the formalin, it is abundantly sufficient to destroy all the germs on them. It being so easily used I think it is a very valuable thing.

Dr. Fillibrown, International.

Forming Cavities.—For permanent fillings with gold, after obtaining separation, the outline form, the resistance form, the retention form, the convenience form and the marginal form must all be carefully studied before and during the preparation of the cavity, when physical conditions are such as to warrant the expectation of permanency.

E. K. Wedelstaedt, Dental Cosmos.

Formaldehyde in Blind Abscess.—Secure free access to root-canals, open as far as possible, using sulphuric acid, 50 per cent., and follow with hydrozone. Dry as thoroughly as possible, and place in each canal a wisp of cotton saturated with formaldehyde, and seal with gutta-percha stopping for a week or ten days. Should formaldehyde drop on tongue, cheek or lips, swab with cotton dipped in grain alcohol.

J. H. Hanning, Dental Headlight.

To Secure Success with the Jenkins' Inlay System.—We must know how to handle the material before attempting operations in the mouth. With gold impressions from cavities in extracted teeth go through a scale of trial burnings of every color, and compare results with the sample shades. Two good results will be obtained; becoming thoroughly familiar with the process of baking the enamel and learning what results may be expected in the fused inlay, and the peculiarities to be remembered in choosing the color for operations in the mouth.

Wm. Hirschfield, Dental Cosmos.

Formaldehyde.—Mr. Bird says 1-250 formaldehyde for general disinfectant solution for washing hands, sterilizing instruments, etc. That would be equivalent to 1-100 of the 40 per cent. solution, or 1 per cent. I put about one teaspoonful of the 40 per cent. with a bowl containing about one pint of water, which makes about $\frac{1}{2}$ per cent. formaldehyde solution. It does not affect the hands, though it does deodorize them, and according to the authorities it does sterilize them.

Dr. G. T. Baker, International Dental Journal.

Systemic Treatment by the Dentist.—Dr. Luckie: Should the dentist be so unfortunate as to have a death occur after he has prescribed a systemic remedy, who would give the certificate of death?

Dr. Truman: The coroner in case of accidental death, whether at the hands of a dentist or a physician.

Academy of Stomatology, International Dental Journal.

After-pains of Extraction.—After every extraction, with subsequent pain, I wipe the alveolus with concentrated carbolic acid, applying it by means of cotton held in the tweezers. Success is almost certain, even after hours of pain, the pain ceasing suddenly. An excess of undiluted carbolic acid, in exposed tissues, is less dangerous than a diluted solution.

Arthur Scheuer, Items of Interest.

Facial Neuralgia.—Agathin, given in slight doses, is an excellent remedy in facial neuralgia, which is sometimes caused by dental irritation. It has been found to give good results in the treatment of tic douloureux, in the first stages, in doses of from 2 to 8 grains.

Report of Committee on Materia Med.

New Jersey S. D. Soc., Items of Interest.

To Hold in Place the Pieces of a Broken Plate.—Fill a lower impression cup with softened modeling compound and press the teeth of the plate in this, bringing the edges of the fracture together accurately. When hard dip in water and fill as in making a model. When plaster is hard soften the compound and remove and proceed as the case requires.

Dr. Tickner, Ohio Dental Journal.

Treatment of Children's Teeth.—Why should not the teeth of children be treated the same as teeth of adult years? The deciduous teeth are possessed of a much less proportion of earthy matter, and are consequently less dense in structure than the permanent teeth of adult years. Organic matter is present in larger proportion, and the deciduous dental tissues are, therefore, more porous and osmotic and permeable by fluids. They are more sensitive to shock and possess less vitality and recuperative power; the pulp is larger in proportion to the crown, the horns projecting far toward the periphery, and succumbs more readily to injurious influences. For these reasons gold is contraindicated.

A. H. Thompson, Dental Cosmos.

Relief of Toothache from Inflamed Pulp.—Introduce into cavity a plug of cotton steeped in an alcoholic solution of orthoform. The pain instantly disappears, and for a considerable time. Being absolutely non-toxic it constitutes a simple remedy which the patient can apply without danger.

Dr. Hildebrandt, Medical Press.

Proximal Cavities in Anterior Deciduous Teeth.—Remove all caries, which is mostly of the brown, leathery character and easily removed. Reconstruct with high-heat gutta-percha after having chloro-perchaed the based of the cavity. This serves a double purpose; it cements the filling to the tooth-walls and insures perfect adaptation of the material used for filling; also reduces the sensibility of the patient to the temperature of the gutta-percha. This will preserve the teeth and appear presentable until they are lost by edentation. *Louis C. LeRoy, Dental Cosmos.*

Volasen, the Antidote to Cocain.—By the use of this antidote you can use cocain with impunity. It stimulates the respiratory and cardiac functions and prevents depression. It is given in from 1 to 5-drop doses before you inject the cocain. I follow the instructions given on the label, and use it with freedom. I have never used it hypodermically though; in case of cocain poisoning I imagine it would act more promptly. It should be given in advance of the cocain. Without cocain a teaspoonful will produce death.

J. Lennox Curtis, International Dental Journal.

The Care of Children's Teeth.—It is of much greater importance to prevent the formation of cavities; to abort them before they are sufficiently underway to necessitate filling, than it is to fill in the most skilful manner possible, or with the best known materials. When we find the surfaces of the teeth by contact forming an inviting place for lodgment of destructive bacteria we should separate and polish these surfaces, making, as far as possible, ideal points of contact. Even after decalcification has begun, if the surfaces are smoothed and polished and the form connected, often there will be no tendency to recurrence of the trouble for many years. I believe this to be the essential and all-important thing to be done in the care of children's teeth wherever possible.

G. V. I. Brown, Dental Cosmos.

Dental Caries; a Contributory Cause.—People generally eat too much soft food. If we could banish spoons and forks from our tables and be compelled to take all our food hard and dry, and from the hand as we now take bread, it would be better for the race. I am satisfied that lack of use is one cause of the premature decay of the teeth.

J. H. Kellogg, M.D.

"Shoeing" or Tipping Porcelain Teeth.—Grind the tooth to thin or "feather edge" as usual; extend backing as far as possible, filing off gently toward the tooth. Place on model and wax up, extending the wax a few lines beyond occlusal end of tooth. After investment has hardened remove wax and pack the groove left by removal of wax on end of tooth with non-cohesive gold foil. When soldered the tip will be perfect, the foil serving as scaffolding to carry the solder.

E. P. Beadles, Danville, Va.

Treatment for Whooping-cough.—Lauriaux, as the result of his researches, states that the treatment should be purely local and antiseptic. He recommends naso-insufflations of a powder composed of:

R. Sulphate of quinin.....	4 parts.
Resorcin	1 part.
White powdered sugar.....	25 parts.

To be used five or six times daily, preferably after a fit of coughing.

Journal American Medical Association.

Combination Filling, Gold and Amalgam Alloy.—Using the crystal gold strips number one (A. J. Watts), which is very spongy and readily takes up mercury, add the gold to the alloy and mercury and grind them as if no gold was being used. Much is gained by the addition of the gold; the color is very greatly improved, and there is no shrinkage, expansion, or crumbling of the margins and less staining of the walls of the cavity.

Benjamin Lord, International Dental Journal.

Trichloroacetic Acid in the Treatment of Pyorrhea Alveolaris.—Trichloroacetic acid not only acts as a solvent, but its judicious use causes a slight sloughing, which seems to be particularly stimulating and healthy granulations soon spring from the gum tissue. Carry to base of pocket, and repeat as may be necessary. Take one tooth at a time and clean it well. Syringe the pocket with any soothing antiseptic, dry the pocket as far as possible, and fill with a paste of powdered pepsin and boracic acid in vaselin. Prescribe a proper mouth wash or spray, and do not touch that tooth again.

Henry H. Tompkins, Items of Interest.

Pulp Stone—Diagnosis.—1. Such exertion as will increase the action of the heart will aggravate the trouble. 2. Sounding the tooth with a steel instrument will give the same result as an incipient periostitis. 3. Sudden closing of the teeth indicates periostitis. 4. Closing the teeth gently and biting ever so hard is not painful, and indicates that periostitis is absent. 5. Lateral pressure does not give pain as it would in a case with periostitis.

Dr. E. T. Payne, International Dental Journal.

Exposing the Cervical Margins.—I am accustomed always to get as full an exposure of the cervical margins as possible before operating by packing the cavity and against the gum with gutta-percha, with the surface moistened with oil of cajuput to make it stick, leaving it for a day or two. The gutta-percha may be made to stay in place, if other methods are inadequate, by tying floss silk across the tooth and over the filling.

J. F. P. Hodson, International Dental Journal.

Filling Materials for Children's Teeth.—For the anterior teeth we regard gutta-percha as a *sine qua non*. Even when the cavities are saucer-shaped, by wiping them out with eucalyptus oil and taking a piece of pink gutta-percha the size of the cavity, the solvent action of the oil will cause it to adhere. The application of silver nitrate is often sufficient, without any filling material. The drug neutralizes the decay. If common salt is rubbed over the nitrate of silver it forms a silver chloride and leaves a polished, though blackened surface. Or paraffine may be well rubbed in with a heated burnisher, entering the tubuli and arresting decay. This demands an absolutely dry surface not essential with the silver nitrate, but does not discolor.

Theo. F. Chupcin, Dental Cosmos.

Cavity Impression for Porcelain Inlays.—The use of thin gold foil will give most perfect results, but there will probably be a good many failures, due, probably, not to lack of care or skill on the part of the operator, but to the neglect of one of the following conditions: Want of space in proximal cavities; insufficient exposure of the whole outline of cavity; defects in the borders of the cavity; defects in the internal shape of the cavity; sticking of the foil at either tooth or gums. The preparation of the tooth with a view to obviating these faults represents the whole secret of successful impressions and consequently perfectly fitting inlays.

Wm. Hirshfield, Dental Cosmos.

Deciduous Second Molar.—Cavities upon the distal wall of deciduous second molars require our eternal vigilance, as the erupting first molar has a tendency to crowd into the carious area, reducing the space for the future bicuspid. Give these cavities a retentive form and insert an amalgam filling having an exaggerated and rounded contour. Only as a last resort cut away the decayed surface, leaving a shoulder-like projection at the neck.

D. H. Ziegler, Ohio Dental Journal.

Alveolar Abscess.—The pain associated with the formation of pus and the final formation of a fistula is very intense. The application of a capsicum bag before retiring and the following taken will usually insure a comfortable night, with pus discharging in the morning:

R. Chloral hydratis..... grs. xxv.
Potassii bromidi..... ʒi
Misce et ft. pulv. No. iii.

Sig.—One to be taken before retiring.

Leo Greenbaum, International Dental Journal.

Sterilization of Dental Instruments, Napkins, etc.—For steaming dental instruments and napkins, more thoroughly sterilizing them than by simply boiling them, the ordinary dental vulcanizer furnishes a simple and effective sterilizer. Place them in a cotton or linen bag, tied closely at the top, put in the vulcanizer and run the thermometer up to 230 degrees. Shut off the gas and allow them to remain in the steam-bath for ten minutes. A small quantity of bicarbonate of soda placed in the water will prevent the instruments from rusting. Any vulcanizer holding three flasks will admit the forceps, which of all dental instruments should be thoroughly sterilized.

Kasson C. Gibson, Dental Cosmos.

Cleansing the Teeth.—For cleansing teeth I use a germicidal agent that is made of iodol, salol, dissolved in chloroform and alcohol, to which is added a small quantity of oil of cinnamon or oil of cloves. I apply this with a camel's hair brush, or bibulous paper, to the dry teeth. Allow it to remain a minute or two, and follow with a mixture of iodine and chloroform, equal parts, allowing this to dry. The effect is simply marvelous. I never knew what it was to have my patients have clean teeth until I used this preparation. We get the teeth clean by taking off the zoogloea of bacteria.

Dr. Register, International Dental Journal.

Hypersensitive Carious Spots in Deciduous Teeth.—Keep the parts to be operated upon as free from moisture as possible. Treat with a strong solution of silver nitrate, 50 per cent., or by deliquescing the crystals in the cavity, absorbing all excess that remains after a half minute or so. If the discoloration is very disfiguring, a shell of very thin platinum may be adjusted with ease and rapidity, and is much less conspicuous.

Louis C. LeRoy, Dental Cosmos.

Hypersensitive Dentin.—I do not know of any better local treatment than the old-fashioned carbonate of potassium in glycerine (saturated solution). I have used that remedy, both with and without the rubber-dam, with as much comfort as could possibly be obtained with any other remedy. It is applied on a small pellet of cotton; if necessary it may be sealed in the cavity, renewing it every day or two. It is effective even when dentin is so excessively sensitive that the touch of an explorer causes excruciating agony. This is not new, but it is effective.

Dr. Jefferies, International Dental Journal.

Chapped Hands and Lips.—When the lips are broken and bleeding, and the hands roughened and cracked, the under skin is in a high state of hyperemia. A preparation that is charming and wonderful in restoring normal conditions, instantly stopping all pain in the parts, is resinol, a combination of "oil of cade" (oil of juniper), lanolin and petrolatum. I have never found its equal in dissipating capillary congestion. It has wonderful power to subdue localized pyrexias. In the very worst case of chapped lips rub resinol well over them, and go ahead and operate; the patient will have no distress, and by the next sitting the lips will be soft and pliable as an infant's.

C. B. Colson, Items of Interest.

Care of the Permanent Anterior Teeth of Children.—Adopt every possible means to preserve the life of the pulp. It is allowable to take chances, in case of near exposure, that would be unwise later in life. One method is as follows: Isolate the tooth with rubber-dam; remove *débris* and as much of the softened dentin as possible; flood the cavity with a non-irritating antiseptic, allowing it to remain a short time. Remove with absorbent cotton cover the surface with gutta-percha dissolved in eucalyptus; then a layer of oxychlorid of zinc covering all, and filling cavity with zinc phosphate or gutta-percha.

Wm. G. Clark, Dental Cosmos.

Miscellany.

Tubercle Bacilli in Butter.—Dr. Petri, of the Imperial Health Office in Berlin, has found tubercle bacilli in 32.2 per cent. of 102 samples of butter examined.

Goodale's New Method for the Operative Correction of Exaggerated Roman Nose.—The essential features consist in the excision of the redundant portion of the septum, the separation of the nasal bones from their maxillary articulation, depression of the bony bridge to approximate the newly-formed superior septal margin, and finally fracture and depression of the lateral maxillary ridges. The whole operation is an intranasal one, and, therefore, involves no wounding of the skin.—*Phila. Med. Jour.*

Heart Contractions after Death.—Marchand, of Marburg, has made a study from a number of cases of the duration of automatic heart contractions after the death both of the fetus and the child at term. He finds that in all warm-blooded animals this persists for several hours, lasting longer in the fetus than in the full-term child. In the latter, however, he has observed five or six rhythmic contractions after opening the thoracic cavity. A similar case was reported by Neugebauer in the *Centralblatt* for November 26th, 1898.—*Phila. Med. Jour.*

Gas and Oxygen.—Silk's experience went to show that the after-effects of gas and oxygen are more frequent and varied than those which follow gas alone. They may persist after the individual has regained consciousness. The mixture was not one to advise for indiscriminate use.

Crouch said that he had experimentally proved that gas and air, or gas and oxygen, dilate the heart.

Buxton said that the mixture had been praised as a panacea by some who were unaware of its limitations.—*Med. News.*

Tuberculosis in the Queen's Dairy.—The slaughtering of the Queen's dairy cattle for tuberculosis, mentioned by the Prince of Wales in his Marlborough House speech, which attracted such wide attention, has now been reported upon by Professor Macfadyean, the well-known veterinarian, by whose advice it was carried out. The herd was first tested by tuberculin, and so many of them reacted that it was decided to slaughter all of them, when no less than thirty-six out of the forty were found to be tuberculous. And as if this were not enough, four of the cows had a "septic" disease of the udder, and five were riddled as to their livers with echinococcus cysts. Professor Macfadyean says that the stabling, food, and care of the herd were simply ideal, but 90 per cent. of tuberculosis is something frightful, and well may "uneasy lies the head that wears a crown" if this is the sort of milk and butter which it has to subsist upon.—*Med. News.*

Combined Business and Pleasure.—The patient may now take his cod-liver oil in the form of *pate de foie de morue*, which, according to a French paper, is both effective and agreeable.

Helmholtz's Brain.—Professor Hansemann, of Vienna, has examined the brain of the late Professor Helmholtz. Its weight was 1,440 grams (about 45 ounces), and the convolutions were extraordinarily complex.

Danger in Bromo-Seltzer.—Dr. Henry G. Piffard, of New York, in testifying before the Pure Food Committee the other day, took occasion to caution against the use of bromo-seltzer on the supposition that its ingredients were practically harmless. He emphasized what had already been brought out in the analysis in the well known Adams poison case, that it was customary to add a considerable proportion of acetanilid. Dr. Piffard added that he believed that the practice of adding this dangerous ingredient was becoming widespread, and cited a recent case of poisoning from this source occurring in the practice of a medical friend.—*Phila. Med. Jour.*

Ethmoidal Mucocoele.—A few cases are on record. The case of a girl, 13 years of age, is reported, who four years previously fractured her nasal bones and had had nasal catarrh since. The left eyeball was protruding and pressed to the temporal side of the orbit, and a smooth, round, firm, tumor was palpable. An incision was made from the root of the nose to the middle of the brow, the tissues were dissected up and retracted, and it was found that the ethmoidal walls had been converted into one large cavity, containing at least 4 ounces of creamy material. This fluid was withdrawn and daily irrigation with boric acid was practiced, which was followed by rapid disappearance of the discharge and healing of the wound.—*Jour. Amer. Med. Association.*

Plastic Restoration of the Under Lip.—Stieda, in *Deutsche Med. Woch.*, describes the following method of restoration of the lower lip: The case reported necessitated the removal of the entire lower lip by an arch-shaped incision. An incision somewhat longer, but parallel to the one used to excise the growth, is made across the region of the double chin. The flap thus made is dissected free, up to the edge of the lower jaw, and the knife, being kept close to the bone, is pushed upward until it makes its appearance in the primary wound. With a sawing motion toward both the right and left, the chin region is loosened from the bone. The flap so made is then drawn visor-like upward to form the new lower lip, and is held in place by a nail driven into the middle of the chin. A few sutures and a sterile dressing complete the operation. The space left underneath the chin heals by granulation.—*G. B. W., Phila. Med. Jour.*

The Royal Society of Edinburgh.—At the last meeting of the Royal Society of Edinburgh an interesting paper was read by Dr. Carlier upon the changes that occur in the cells of the newt's stomach during digestion. The paper was an elaborate study of cell-physiology, and proved, among other things, that digestion began at the upper end of the stomach and passed in a wave down to the lower end, while there was an interval of from one and a half to two hours between the beginning of the secretion in the upper and lower ends. Dr. E. W. W. Carlier is lecturer on experimental physiology and histology in the University of Edinburgh.—*Phila. Med. Jour.*

The Caoutchouc Ceara was recently introduced into the French settlement of New Caledonia by M. le Gouverneur Feillet, the result being described as "marvelously successful." With a few exceptions, most of the 10,000 grains distributed to several of the settlers have sprouted, and the trees, having arrived at a respectable height, have been enabled to withstand a severe cyclone very well. The settlers who have made a trial of the tree are quite agreed as to its future, and although the experience has been somewhat short it is said to have shown that the *C. ceara* does not require a hot and moist climate for its development, as is the case with other species of india rubber-producing trees.—*Pharmaceutical Journal.*

Adulteration of Food.—The bill introduced by Senator Ambler into the New York Legislature to provide for a general investigation of all food adulterations is the outcome of the investigations of the chemists of the State Department of Agriculture. That department now has in its possession 125 samples which constitute an excellent object lesson. Among other exhibits are half a dozen samples of counterfeit coffee beans. It used to be thought that unground coffee was free from adulteration, but this is no longer true, the making of artificial coffee beans having become a distinct line of business. The artificial beans are usually made of dough, pressed into the shape of the coffee bean, and then baked or stained. So perfect is the deception that it is stated that an admixture of from 50 to 75 per cent. of these "dough" beans with regular coffee is likely to escape detection. Flour is often adulterated with plaster of Paris, white clay or talc. The chemists of the Agricultural Department also exhibit a strip of paraffin obtained from a sample of butter, and some so-called tomato catsup made of ground pumpkin, flavored with an acid.

The Mercantile Exchange, of New York, has adopted resolutions unanimously indorsing Senator Ambler's bill to prevent the use of artificial preservatives in dairy products, and the bill has also received the indorsement of the State Grange and Farmers' Congress.—*Phila. Med. Jour.*

The Method of Bleaching Sponges purchased at Tripoli for European markets is given in a recent report as follows: After being well soaked in the sea for cleansing purposes, the sponges are immersed in a tub of water containing a solution of oxalic acid, whence they emerge of a yellowish color, great care being required that they do not remain in the solution too long, otherwise they become "burnt," and consequently worthless. They are then dried and worked up in dry sand, shaken, and packed in boxes ready for shipment. The presence of sand in the sponges, Consul-General Jargo remarks, is said to be necessary to suit the requirements of consumers in certain European countries where it is considered an infallible test of the genuineness of the article.—*Pharmaceutical Journal*.

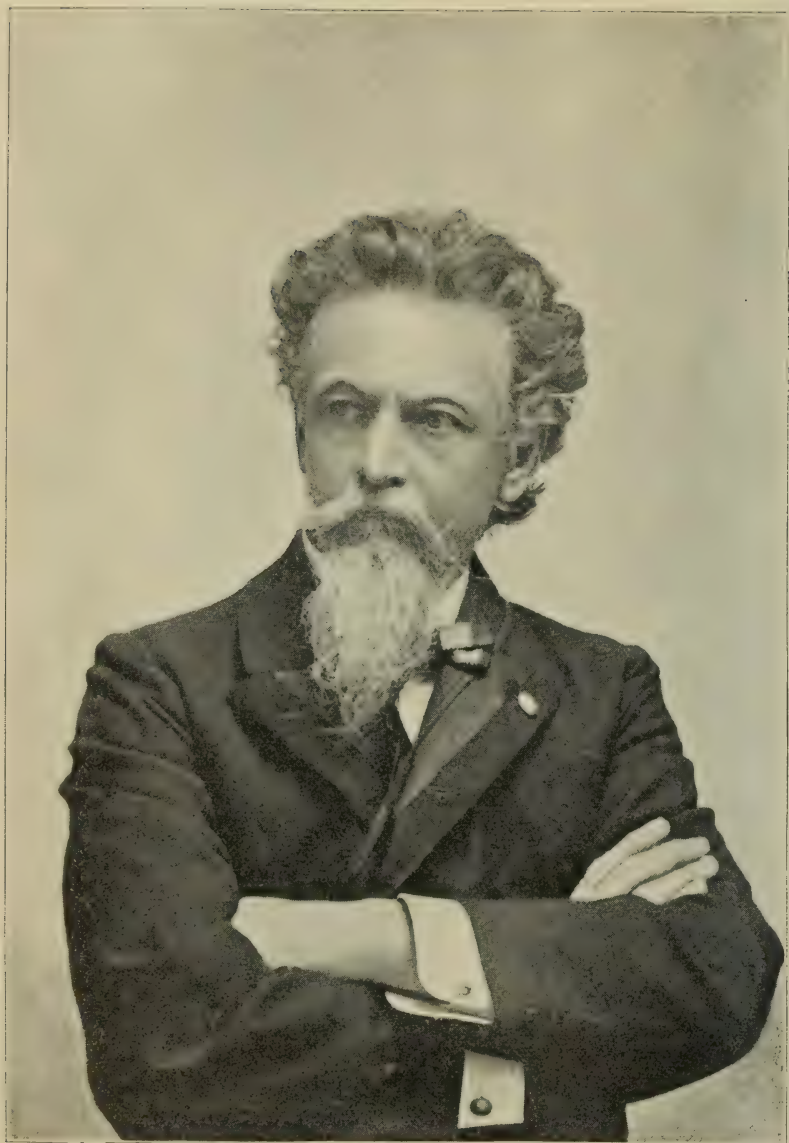
Shock.—In the *Med. News*, February 25th, Dawbarn considers five points to be especially observed of the treatment of shock by "the free use of intravenous, hot, saline infusion:" 1. The place of entrance, which in most cases is the median basilic vein, occasionally a vein in the operating wound, while, where speed is not a factor, the rectal route is an excellent one. 2. As to the solution, it should be the so-called normal, really decinormal, salt solution, which is six parts of common table salt per thousand, boiled and filtered; roughly, a heaped teaspoonful to the quart. 3. The solution should be as hot as can be borne by the hand, about 120 degrees F. 4. In the adult, the amount should never be less than a liter, often two, and occasionally three, always injecting slowly. 5. The time occupied introducing the fluid into a vein should never be less than ten minutes to the liter.

Objects of Ventilation.—It is to me difficult to resist the impression that an overdose of waste products, whether of one's own or other people's, must generally interfere with the metabolism of nerve tissue. Women as they grow older are apt to live much indoors. I believe the fat, flabby, paunchy woman, whether purple or pale, with feeble, irritable heart and "inadequate" kidneys, is usually the victim of rebreathed air. A "close" room will infallibly give me an abdominal distention and borborygmi within half an hour, and I am inclined to think the purity of the air breathed by the dyspeptic quite as important as his régime or his teeth. It must, I think, sooner or later be recognized that many of the increasing ills which it has been the fashion to charge on the "hurry and brain fag," incidental to the high state of civilization and a large population, are in reality due to the greater contamination of the air we breathe by the waste products of that population, and that toxins excreted by the lungs will in time take high rank among these as both potent and insidious. If this should come to pass, the present ideas anent ventilation must be abandoned as utterly futile, and the need will be felt, not of letting a little air in, but of letting waste products out.

Spontaneous Disappearance of Tumors.—Guthrie states that the spontaneous disappearance of tumors may be due in some manner to the cutting off of the blood-supply, not in a manner which can be accomplished by surgery, but through the vaso-motor system. This may explain the success which was said to follow the application of toads to cancerous breasts in the last century. The skin of a toad excretes phrynin, which is a powerful vascular astringent. It should not be forgotten that strong mental emotions may possibly affect the sympathetic system so as to cause a local constriction of blood-vessels. In this manner may be explained the miraculous cures of cancer at Lourdes and elsewhere.—*Med. News.*

Insurance of Vegetarians.—We have had in this country sectarian insurance companies, both religious and medical, but we believe that they have not been long-lived; certainly none of them have been brilliant successes. We may have more from time to time, but they will all have to undergo the tests of hard business experience. It is said that at the present time there are several life insurance companies in England that take vegetarians at reduced rates, considering them as better risks. With the views now held on this subject by the highest physiologic authorities, this would seem a doubtful business venture, but the experience of these alleged companies, if this policy is constantly followed long enough, ought to be an interesting practical experiment. All the other possible elements will have to be duly estimated to make it of any real value, but this, it is assumed, will be the case.—*Jour. Amer. Med. Association.*

Asterol.—Many efforts have been made to find an antiseptic that, while possessing the power of corrosive sublimate, should be free from its disadvantages, which are: (1) Its poisonous character; (2) its decomposability by albumin; (3) its destructive action on surgical instruments. Under the name asterol a soluble preparation of sulfocarbolate of mercury has been placed upon the market, which is not precipitated by albumin. It contains 17 per cent. of mercury, hence is about one-fourth the strength of sublimate. Steinmann has made experiments to determine the value of the substance; at the same time he tested mercury arseniate, recently suggested as an antiseptic. The latter, however, was proved to have all the disadvantages of corrosive sublimate, without any superiority. Regarding asterol the author's conclusions are as follows: (1) It is soluble in water; the solutions remain clear; (2) it has marked bactericidal action, which it does not lose in albuminous media; (3) its solutions do not cauterize wounds; (4) it has a deep penetrating action; (5) it is useful for disinfecting the hands and field of operation, as well as instruments, as it does not attack the latter; (6) although it is as toxic as other mercury compounds, it can be used without much risk in the antiseptic treatment of wounds.—*Phila. Med. Jour.*



W. H. Donnell

THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, OCTOBER, 1899.

No. 10

ORIGINAL COMMUNICATIONS.

POINTS IN THE CONSTRUCTION OF CONTINUOUS GUM DENTURES.

By William R. Hall, D.D.S.

The general directions for making this class of dentures are sufficiently familiar, but there are certain details of the process which have been given but scant explanation, and which seem to the writer important enough to warrant some further observations for the guidance of those who are not experts.

The Impression.—A good impression is of the utmost importance, as the success of the whole operation rests on obtaining from it a perfect cast; if the impression is faulty all further work will be useless, and it is better to take several and choose the best rather than depend upon a single faulty result. Select a tray a quarter of an inch larger all round than the alveolar ridge to give room for wax and plaster; fill the tray with warm yellow wax and take a preliminary impression well forced up. When this is removed, the wax must be trimmed out with a warm knife to give room for the plaster, but leaving the wax untouched across rear end of the palatal portion to act as a cut-off to keep the soft plaster from passing down the throat; score the wax to help retain the plaster while the impression is being withdrawn from the mouth.

The object of the wax in the tray is to hold up the soft plaster against the gum while it is setting; in many cases there is some difficulty in introducing a tray in the mouth when filled with plaster alone, and this preliminary wax impression will give the operator the opportunity to arrange the waxed tray so that there will be no obstruction to placing it promptly in the mouth when the plaster is added. The smoothest and sharpest impressions are made when the plaster reaches the gum in a condition just fluid enough to imbed the gum without much pressure, and to flow into every irregularity of the alveolar ridge and palatine vault.

When introduced an impression tray must be held steadily in position until the plaster has become hard enough to break with a clean fracture, as can be tested by the portion left in the bowl. It will add much to the comfort of both patient and operator if the plaster has been treated so as to set in about three minutes; good, strong plaster requires about eight or nine minutes to set hard enough to fracture if mixed with water alone, but to set in three minutes it should be mixed in water containing five grains of potassium sulphate to the ounce, the plaster being dropped in until the mixture is of the proper consistency.

When the impression is removed give it a coat of thin shellac varnish, which stains it sufficiently to show the dividing line between impression and model in separating. A thin coat of oil is then applied to the impression, which should then be placed in clean water until air bubbles cease to come to the surface.

The Model.—The plaster for the model should be mixed with water alone. A strong plaster, such as that used for making plaster images, is, when sifted through a fine sieve, the strongest that can be obtained. The expansion is inconsiderable, a piece two and a half inches long expanding but one sixty-fourth part of an inch. If possible two plaster models from the same impression should be obtained, one of which would be available as a reserve in case of accident.

The plaster cast for molding the die is made with or without a vacuum chamber model, and with a flange shaped for turning a rim to the plate. It should be thoroughly varnished and dried before placing in the molding in sand.

Sand for Molding.—For molding, a mixture of two kinds, known as fine Philadelphia facing and coarse Albany backing sand are the best. These sands should be mixed together and sifted through a No. 60 sieve while dry, then dampened with water before molding. Flasks for molding dies are made in various forms. I prefer round iron casting rings of different sizes, as it allows a choice in capacity to suit the various sizes of the plaster model. In such a ring, four inches in diameter and two and a half inches high, is placed the plaster model, which is one and a half inches high. The sand should be sifted over the model until the ring is half full; pack the sand close to the model with the fingers. The ring is then filled up with the lumps of sand left in the sieve, and is well packed down and

leveled off flush with the ring. When the ring is turned over, the model will probably drop out, or will fall with the aid of a slight tap on outside of the ring.

The melted metal is then poured carefully, letting the first portion strike the rear part of the mold. When the casting is cold, drop out the die. The sand left in the ring is then scooped out deep enough to sink the rim of the die even with the top edge of the sand. Any space between the die and sand must be filled and leveled off; upon this place a smaller ring that can be pressed into the sand to make a tight joint, and pour in the melted counter die metal.

The Metallic Die.—The important question of selecting the proper metal for making the die must now be considered; this selection is largely governed by the character of the alveolar ridge; if the tissue is soft over nearly the entire surface to be covered by the plate a die is required which contracts somewhat in cooling. The proper metal in such cases is zinc, the contraction of which is notable, an ingot two and a half inches long cast in a sand mold shrinking one-sixteenth of an inch in length.

If the alveolar ridge is hard and unyielding an entirely different metal, one that will not contract when cooling from the melted state, must be selected. As no single metal can be used for this purpose, recourse must be had to an alloy. The best known is Babbitt's metal, made after the formula given by Dr. Haskell; this alloy has no sensible contraction, and is hard and tough enough to withstand the blows of the hammer in the swaging process. Its melting point is just below that of zinc, or about 650° F. Five or six pounds can be melted in a few minutes with one of Fletcher's solid flame gas burners. If this alloy has been well made it can be melted a great many times without deterioration, provided it is melted carefully. The operator should watch the alloy, and when it softens in the ladle stir it with an iron rod to break up the crystallization of the metal, and pour, as soon as it becomes liquid enough, into the sand mold.

Making Babbitt Metal.—To make a small quantity of this alloy a process different from that of the large metal manufacturers is required, and is within the resources of any dental laboratory. The following is the formula for Dr. Haskell's alloy:

R. Copper	1 oz.
Antimony	2 ozs.
Tin	8 ozs.

The usual directions for melting the metals for making this

alloy are to fuse the copper first, the antimony and tin last; this is not easily done, as copper requires the heat of a blast furnace for complete fusion. To avoid this troublesome process the writer's method is to take advantage of the fluxing quality of tin to fuse the copper at a lower heat. This is accomplished by preparing the metals as follows: The copper, in the form of nails, is placed for some minutes in a saturated solution of zinc chlorid; it is then taken out and dried previous to being used. The tin is divided into two portions, one portion is put in an iron ladle, placed on a coal fire, and allowed to come to a dull red heat; if fully dry, the copper nails are then thrown in and pushed to the bottom of the ladle; they will soon melt; then follow with the antimony and the second portion of tin; stir all together, and when well mixed remove from the fire. This alloy, made as above directed, can be remelted over one of Fletcher's solid flame burners in a few minutes.

The amount of metals in the above melt if increased to three times that of the formula will be more convenient to handle, and also furnish a sufficient quantity to make several dies of the usual size. The following formula provides for this increase, and is arranged in the order in which each metal should be melted:

R. Tin	12 ozs.
Copper nails	3 ozs.
Antimony	6 ozs.
Tin	12 ozs.

The Counter Die.—This die must be a metal with a low fusing point, and soft enough to yield sufficiently to permit the harder die and plate to be driven into it and be imbedded to its full extent; unless the die and counter are in complete contact at all points, it is obvious that the plate between will be but poorly fitted. The counter die for zinc is made of lead, which makes the most perfect counter in all respects, just hard enough to force the plate into all the indentations of the die without bruising it. The counter die for Babbitt's metal should be similar to lead in this respect, but must melt at a lower temperature to prevent fusion of the die. This result is attained by alloying the lead with bismuth which lowers the fusing point of the alloy to about 500° F. This alloy can be made after the following formula:

R. Lead, commercially pure.....	40 ozs.
Bismuth	5 ozs.

When this alloy is melted it must be permitted to chill until it thickens slightly, and should then be poured quickly over the

Babbitt die. This will prevent any adhesion between the two metals. Another alloy for a low fusing counter die is composed of tin, 1 part; lead, 8 parts, but is too hard for most swaging purposes, especially where the plate passes over the alveolar ridge, as in full dentures.

Swaging.—But few words are needed on a subject so generally known as that of swaging plates. As a matter of experience I would emphasize the necessity of having the platinum plate of sufficient thickness to stand the force of swaging, for in bending and forcing the plate to enter the counter die a reasonably thick plate will resist the inclination to wrinkle better than a thin one, and the rim, which receives more bruises than any other portion of the plate, can be scraped and smoothed without danger of cutting through. For these reasons, and others that might be mentioned, No. 27 of U. S. standard gauge is to be preferred rather than a thinner number.

The usual details in fitting the plate to the mouth and taking the bite are identical with those methods employed with other dentures. Some reference may be made to cases where the gum tissue is unduly soft and impressible. To overcome the difficulties arising from this condition some practitioners advocate the careful trimming of the original plaster cast, which, after proper examination of the gum, has been marked to indicate the location and extent of the parts that are to be cut away. The surplus plaster is then removed, and, if in the judgment of the operator the amount cut away is correct, metallic dies are made and the plate swaged. This causes the plate to press with increased force upon the soft gum tissue at the points where the cast has been trimmed, and thus secures to the plate a firmer support.

By another method the same object is accomplished at the time the platinum plate is tried in the mouth, when, if the adhesion is found to be sufficient to sustain the plate, direct pressure is applied to different parts of the plate to ascertain if it can be displaced. If it is thus displaced, the probability is that it is improperly fitted or that some yielding of the soft tissue has taken place. To remedy this defect those parts of the metallic die which represent the soft and yielding gum tissue are cut or scraped away. A new counter die is made and the plate re-swaged.

If the operator is skilful or fortunate enough to scrape or cut off the correct amount of material from cast or die by the above

methods the result will be a success; but if he should fail to estimate the correct amount to be removed a retrial will be a necessity.

A third method, having the promise of more direct success, is the process often resorted to when repairing old rubber plates in cases where, by the absorption of the gum at one or more points, the plate is left unsupported and liable to be displaced in the same extent as though the gum tissues were soft. Briefly told, this rubber repair consists in filling the plate at the points where the gum has been absorbed with a small but sufficient amount of melted wax which, while yet warm and plastic, the patient is directed to bite into place; plaster is then run in the imprint, and the usual vulcanizing processes follow.

The suggestion to be drawn from the above process, and to be applied in the case under consideration, is to use wax as an agent for compressing the soft parts of the gum sufficiently to give the plate a firm support. To obtain this result the operator will in the first place try the plate in the mouth to ascertain if the adhesion is sufficient to hold it in position. If the suction is correct, and yet by pressure the plate is displaced, it must be removed from the mouth, wiped dry, and a few drops of wax melted into it at the points covering the soft tissue. While yet warm the plate is returned to the mouth and pressed into place; more or less wax is used according to the amount of pressure required to make the plate rest on the hard and soft parts of the gum alike. When by this means pressure is equalized and displacement of the plate under pressure prevented, plaster is run into the plate, the wax being still in position; a new die and counter die are made and the plate reswaged.

Taking the Bite.—The details of this process as applied to continuous gum work do not differ from those employed for other dentures, and need not here be given. The best wax to use is a mixture of paraffin and bee's-wax in the proportion of two parts bee's-wax to three parts paraffin; the wax gives this preparation tenacity and the paraffin firmness enough to keep its shape when subjected to the warmth of the mouth when closed. The pink paraffin and wax of dental supply houses answers a good purpose.

The articulator should be as simple in construction as possible, remembering that its chief purpose is to make the articulated models antagonize in the exact position obtained by the

bite. To be capable of ready and complete separation so that each part can be laid aside when not wanted, and each part be handled with facility, the articulator should be light in weight so that it will not embarrass the hands with a cumbersome burden while arranging or cementing the teeth to the plate, which is an operation requiring delicate and expert handling. The above requirements are fully met by the all-plaster, home-made articulator, which, briefly described, is an extension added to each plaster model at the rear end, with interlocking grooves to hold them in position when closed; this allows the models to be separated and laid aside without loss of time. This simple contrivance, familiar to every dentist, is not equalled by any modern metal articulator; the principal objection to these being their weight and general clumsiness.

Grinding and arranging the teeth to fit the plate is too well understood to call for any extended description. A few points of special importance should, however, not be neglected; one of these is that the root end of each tooth should rest firmly on the plate to support it during the after manipulations of waxing, soldering and the subsequent fusing of the porcelain material to the plate. Unless this rule is strictly observed the teeth will be drawn out of line and the articulation and symmetry of the set destroyed. When the teeth are arranged and securely fastened with pink paraffin and wax, they should be tried in the mouth to correct errors and mistakes.

Preparation for soldering the teeth to the plate consists in removing the wax from the outside of the teeth to leave room for the investment; the wax must be carefully cut away, leaving the crowns and outside of the roots clean, and with only just enough wax on the inside to hold the teeth in place until the investment is applied.

The investing materials must be of such a nature that they will not contract during the soldering process, and will afford sure protection and firm support to teeth and plate. Several substances are used, such as pumice, asbestos, sand, silex and similar articles, mixed with plaster as a binder. A reliable and much used mixture is plaster, 5 parts; coarse silex, 1 part. The above mixed with water enough to form a thick paste, is applied to the set so as to cover the teeth and under surface of the plate, and thus hold the teeth and plate securely in their relative positions during the soldering process. The invested set is laid aside for

some time to thoroughly harden. Coarse ground silex is far better than bar sand; the grains of the latter are round and smooth, the former irregular and sharp, and afford better grasping surfaces for the plaster.

Soldering.—After the wax has been removed from the inside of the invested set the pins are arranged to come in close contact with the plate; if any prove too short a strip of platinum should be added to lengthen them sufficiently to make contact with the plate. Making a continuous wall of perforated platinum plate, so frequently recommended for this purpose, should be avoided, as it forms an obstruction to packing the body properly around the teeth; its fringed edge forms numerous spaces which holds air, this being liable to form blowholes during the glazing process.

The solder is pure gold plate of 26 gauge, in pieces about one-sixteenth of an inch square, covered with glass of borax, ground up with water to a thin paste. The invested case being now ready for soldering, the process can be conveniently done by gradually heating the set over one of Fletcher's solid flame gas burners until hot enough to transfer to a bed of ignited charcoal in a sheet iron holder, and finished with a pointed flame of a gas blowpipe. This is the quickest and most satisfactory way of soldering the teeth to the plate, as every part can be fairly seen during the operation. When cooled the set should be boiled in dilute sulphuric acid and made scrupulously clean before the body is applied. The plate must be scored with cuts by a sharp pointed knife in every direction, and wherever the point of the knife will reach, for upon this scoring depends the adhesion of the body to the plate, for, as is well known, fused porcelain will not adhere to a polished platinum plate.

Bodies and Enamels.—A full supply of continuous gum materials must be on hand, and should be chosen with a proper regard to the working qualities of each. They consist mainly of two bodies, one of which fuses at a little higher point than the other; of this the main portion of the set is made. The second body of lower fusing point is used for filling up cracks and crevices occasioned by contraction of the porcelain material during the burning process. It is also useful to have two gum enamels, one easy flowing, this being very convenient for filling fissures and repairing cases.

Tools and Appliances.—The tools are few and simple; a sharp

pointed knife-blade fastened in a wooden handle and a small spoon-shaped spatula similar to the S. S. White Co. wax spatula marked No. 7. Both of these should be made of steel, well polished. A small bottle of pulverized glass of borax and a box for chips of broken porcelain teeth, used for wedging and propping loose teeth, camel's-hair pencils, glass cup, etc., complete this simple outfit, which, for convenience, should be put in a wooden box with a cover.

Applying the Body.—Before applying the body the set must be carefully examined, and if it should be found that any tooth is not resting firmly on the plate it should be propped up by placing a small chip of a porcelain tooth under it. The piece of tooth will not fuse at the heat necessary for continuous gum body.

In applying the body to the plate the main point to be observed is to prevent air or an excess of water from remaining between the body and the plate; this, if allowed, will result in blowholes. For the first coat the highest fusing body is used, it being mixed with water to a mushy consistence, and placed carefully around the roots of the teeth and over all the plate, especially at the points where solder has been used, to an even thickness of one-eighth of an inch.

Burning the First Coat.—While the body is still damp it should be cut through down to the plate between each tooth to make smooth shrinkage fissures, to prevent warping. The face of the teeth should be carefully cleaned with a stiff camel's-hair pencil, and the rim of the plate should be wiped with a cloth. The set is then laid on the slide on which it is to be burned, and propped up with small pieces of broken slide to keep it from shaking when handling with the tongs. Previous to burning, the slide, with the teeth, should be heated carefully over a Fletcher gas burner and made quite hot before placing in the furnace, the muffle of which should be at a low red heat. Placing the slide in the muffle should be done carefully to avoid jarring the set; the muffle is then closed, and the heat raised until the body is fairly glazed. It is then removed to a cooling muffle placed at a little distance from the furnace, and is allowed to cool slowly. The above details should be observed in every application and burning of body and enamel.

It frequently happens in fusing the first coat that the contraction of the body disturbs the position of a tooth, or the plate may be warped a little; when this is the case it is much easier to

correct at this time than later, as the plate can be forced down over the metal die, and be made to fit properly before the second coat of body is put on.

The Second Coat of Body.—When the set is taken from the cooling muffle it must be fitted on the metal die, as just explained. By the contraction of the body in burning numerous small cracks will be produced, which must be filled with fresh material. This must be carefully done with a view to exclude all air by carrying wet body on a small knife blade, and working it through the fissure, and then jarring the plate with a light instrument; afterwards pressure with the finger may be made. The second coat of body is then applied. This forms the porcelain basis of the set when of medium dimensions, and is generally built up to the full size and proportions desired, and neatly arranged around the necks of the teeth inside and outside to make a pleasing effect, not forgetting to again make deep cuts between the teeth, as before described. The face of the teeth and rim of the plate must be cleaned off just before putting on the slide for burning.

The shrinking fissures in the body, made previous to burning, were recommended by Dr. D. D. Smith in the second volume of Litch's "American System of Dentistry," and is an excellent plan for preventing warpage of the plate and the drawing of the teeth out of place, as it divides the mass of body into a number of small blocks which contract separately and breaks up the strain of a larger mass.

The Last Coat of Body.—After the second burning the body will be found considerably reduced in thickness with numerous cuts and fissures which it will be necessary to fill up with fresh material. The third and last coat of body which fills these cuts must be of the low fusing kind, as it must flow down and into all fissures, and bind all parts together in one solid and continuous piece of porcelain. The last coat of body also makes up the required fullness needed for the set. At the same time a trial coat of gum enamel can be lightly laid on the fresh body, so as not to mix with it, and be burned with it. Unusual care must then be taken to heat the case, at first gently, and lastly very hot, before entering the red-hot muffle of the furnace.

The Finishing Coat of Gum Enamel.—After the third burning the set will still show some hollow places which must be filled up with low fusing body. Upon this the coat of gum enamel must be laid, forming it tastefully around the necks of the

teeth, and making slight depressions between them to imitate the natural contour of the gum surface. The coarse ground gum enamel is easily displaced by the slightest touch when dry. To avoid rubbing the enamel off in handling, a solution of gum arabic, ten grains to the ounce of water, is carefully dropped on the surface of the gum enamel from the point of a small camel's-hair pencil; this solution when dry will hold the coarse particles of gum enamel together until the set is placed safely in the muffle for glazing.

Repairing.—Old sets of continuous gum when received for repairs are generally in a badly-shattered condition, and the first thing to do is to dry and put the set in the furnace, and raise the heat to a full bright red. This will burn out organic matter, and reveal the amount of repairs required. All loose pieces should be broken off by tapping with the smallest sized rivetting hammer, and the plate be well scored before any fresh body is put on. Where new teeth are to be added, any remains of the old ones left on the broken set must be ground out with a corundum wheel carried well down into the body of the set below the edge of the gum. The new tooth must then be fitted to set firmly in its place. Low fusing body and gum enamel must be used for repairs. Let the coat of body be thick enough to allow for shrinkage, and make cuts down to the plate one-fourth of an inch apart; then place carefully on a slide for burning.

It sometimes happens that a large piece that was broken from the old set can be replaced by covering it with wet body and forcing it into the place it came from; it may be needless to say that the piece must be absolutely clean for favorable results.

After the first burning the set will probably be found with numerous small defects, such as blowholes and shrinkage cracks; the blowholes must be fully opened and filled with body, even with the surface, as must also the fissures. If the teeth are rough they should be washed with a thin solution of glass of borax. Lastly, a thick coat of gum enamel should be laid on all the fresh body, after which the case should be carefully dried and glazed in the furnace. If everything has been properly performed this second burning should be the final one for a repair case; but occasionally a case for repairs has been so poorly constructed that each burning only develops new defects, and causes endless trouble. Then is the time when the operator should determine when it is safe to quit and let well enough alone.

A few words about plumpers. These are projections built on the gum of the set on the buccal sides and over the cuspids for the purpose of filling out the sunken cheeks of the patient. If they are of the right size and judiciously placed, they give excellent results. The writer has made frequent use of this method to develop fullness in the face of patients who have become abnormally thin and require more than the usual thickness of material to replace the loss of tissue. Experience with this method on continuous gum sets, and also with rubber sets, has proved its value, not only in restoring fullness to the face but also in giving additional adhesion to the plate, which probably is one of its best merits, for the action of the muscles of the face in clinging around the plumpers develops double the amount of adhesion obtainable for an ordinary set of teeth, and thus holds it more securely in its proper position, and materially helps in the mastication of food.

The case of an elderly patient where the alveolar ridge of the lower jaw has been completely absorbed, leaving a grove instead of a ridge for the plate to rest on, is typically favorable for this method, as the loss of bone is very considerable in such cases, and a large space has to be filled to make up the deficiency, this requiring that considerable material shall be added on each buccal side of the plate. This additional lateral bulk to the set requires increased strength in the center of the plate, which, as is well known, is always the weakest part of a lower set. A central reënfacement of the plate can be secured by inserting a heavy metallic wire or bar immediately back of the incisor teeth, and completely enclosed in the material of which the set is made.

In such a case as above described all the conditions are present to make a resort to this method advisable, provided that the additions are so placed as to avoid interfering with the action of the chief masticatory muscles of the jaws, and that they are modeled to suit such requirements in fullness as the case demands. With this precaution there is no reason to expect any other than a satisfactory result.



ABOUT CHLOROFORM ANÆSTHESIA.

By N. Louis Chapman, M.D., of Providence, R. I.

After reading in THE BRIEF the case of sudden collapse and death from chloroform, and the warning given against the use of that agent as an anæsthetic, I am minded to add a little to the much that has already been written on this subject.

There is much yet to be learned about the use of chloroform; still it is of importance that everyone should be familiar with what has already been found out. Almost everyone knows that chloroform should not be given in cases of faulty heart action, and that it is better than ether where there has been any nephritis. But the necessity of having perfectly pure chloroform is not so well understood. Pure chloroform does not mean simply freedom from external contamination, but also from that change which often takes place in the chloroform itself when exposed to light and air. If there is an air space left in the bottle and sunlight is admitted, there is formed a deadly gas called carbonyl dichlorid, or phosgene gas. This was first discovered by J. Davy, and is formed by the action of sunlight upon a mixture of carbon-monoxid (CO) and chlorin (Cl₂). It is decomposed by water with the liberation of carbon-dioxid and hydrochloric acid ($\text{CO Cl}_2 + \text{H}_2\text{O} = \text{CO}_2 + 2 \text{HCl}$), the one poisonous and the other irrespirable. With alcohol it forms chloro-carbonic-ether (CO, ClO, C₂H₅), and it readily combines with ammonia and forms urea and ammonium chlorid.

It must be evident from these reactions that carbonyl dichlorid is not the proper thing to give with an anæsthetic, and the question naturally arises, How may we obviate this great danger? It is my custom to purchase the chloroform of Squibbs or Merck in one pound bottles, and immediately transfer it to one ounce bottles, which are filled quite full and stoppered with velvet corks. They are then wrapped in carbon paper or are varnished with enamel or asphaltum. Any chloroform left over from an operation is not used for subsequent anæsthesia. For administration the wire frame of Esmarch covered with a *single* thickness of flannel is best, or the large wire tea-strainers commonly sold in the stores can be elongated and covered with a flannel cap. If this cap is made with an elastic band it may be easily detached, and the cost of making it is so trifling that a fresh one is used for each patient. A cone should never be used for chloroforming, for it

does not give the proper admixture of air. To avoid transferring the chloroform a nick may be cut in the cork and the chloroform poured on the inhaler drop by drop. It is rarely necessary to hold the inhaler nearer than a quarter of an inch of the patient, and on starting the anæsthesia it should be held four inches away. If the patient struggles the chloroform should never be pushed, for the deep inhalations only make the patient take more of the vapor, and consequently anæsthesia comes the more quickly. My experiments upon animals show that instant death often comes from breathing the *concentrated* vapor of chloroform. After the patient is thoroughly anæsthetized but very little is needed, and the same is true of ether. The patient should be kept as near the border-line as possible, and the recovery will be much more satisfactory. If chloroform is used at night it should be remembered that the presence of a lamp causes chloroform vapor to break up, setting free chlorin gas which is very irritating to the bronchial mucous membrane both of the patient and the operator.

The report of a death from chloroform without detailed particulars of the case is of but little scientific significance. Perhaps it was noisy in the office and the doctor did not hear the existing cardiac murmur. Perhaps the chloroform was a month or more old, and taken from a large bottle that had been tapped many times for liniments, etc. Was the chloroform "crowded," the patient in the proper position, the operator skilful in the use of anæsthetics? All these are questions that might be asked.

Then, too, there is that as yet unfathomed "idiosyncrasy;" that peculiarity which renders some people immune to poison ivy while others are poisoned merely by being near it. Can anyone explain why the odor of ipecac will nauseate one while an enormous dose is required to produce emesis in another? In the same way there are patients who do not take ether well and who take chloroform perfectly, and vice versa. The operator should always be prepared with both anæsthetics and be skilful in giving either.

However much one might say about anæsthetics, there would still remain the fact that the giving of them is a fine art requiring experience, tact, and, above all, a quick and keen appreciation of the patient's condition from moment to moment with immediate action in the time of need. A physician particularly skilful in the administration of anæsthetics should among

surgeons and dentists find many who appreciate the fact that his is a specialty which as yet is not overcrowded.

OUR MISTAKES.*

By E. H. Moore, D.D.S., Wilksburg, Pa.

When I was asked by a member of the executive committee to read a paper at this meeting, I found it a hard matter to select a subject. It would be presumption for so young a member of the society as I am to take up some special branch of operative or prosthetic work, and hope to prove instructive to the older members.

Therefore my subject, "Our Mistakes," was selected with the object in view of calling your attention to some of the errors which I have made and seen made by others, and preparing a paper which, though it might not in itself be instructive, might call forth a discussion from which we should derive benefit.

First taking up the subject of cavity preparation, one of our most common mistakes is that we do not cut enough.

Especially is this the case in the preparation of cavities in the masticating surface of molars, many not deeming it necessary to follow out the fissures to their extreme ends. I have seen cavities well prepared in other respects, with fillings beautifully inserted, but the fissure had not been properly followed out, and consequently when the cases were presented to me they required a second preparation and filling, all of which could have been avoided by a proper amount of cutting at the first operation.

Again, we sometimes fail in the preparation of proximal cavities by neglecting to cut until we are assured that our point of contact will be against the body of the filling, and not at or near the edge. At or near the point of contact is a favorable place for the lodgment of particles of food, and it will be readily seen that an insufficient amount of cutting in such cases will result in failure to preserve the tooth for any length of time.

Under this head we often err in failing to remove all infected dentin, and to use an efficient germicide. It is not enough

* Read before the Odontological Society of Western Pennsylvania, June 13th, 1899.

that we should remove all the softened and discolored product of caries from a cavity, but under this we find a zone of infected dentin which if it is not removed may injure the permanency of our operation.

And after this I consider that we are making a mistake if we do not make a "sure thing" of having our cavity in an anti-septic condition by the use of a good germicide, of which we have so many at our command that it is useless for me to suggest any one as being better than the rest.

In filling with gold, our most common error, especially among the younger members of the profession is filling against time. We cannot all be Bonwills in this respect, and even should we be predestined so to be, the faulty will probably not manifest itself very forcibly during the first few years of our practice.

An extra half-hour spent in being certain that our gold is well adapted to the cavity walls and well condensed, should be considered as time well spent.

In filling with amalgam our one grand mistake is that many of us consider it a cheap filling, and manipulate it accordingly. We buy the poorest alloy on the market, or perhaps the best, mix it with too much mercury, pack it loosely into a poorly prepared cavity, and then because it does not vie in lasting properties, with a well inserted gold filling, we lose all faith in amalgam, and consider it a poor second to gold, but good enough for the price, whereas I firmly believe that a good amalgam properly mixed and inserted into a well prepared cavity and properly charged for, is in a great many cases as good as gold.

Another common mistake with amalgam fillings is our failure to contour and finish properly. A filling not contoured on with overhanging edges may prove a source of much annoyance, and even intense discomfort to a patient.

By the use of a very quick setting alloy we may be able to finish our amalgam fillings at the first sitting, but in the majority of cases a second sitting for finishing is to be preferred.

Taking up the subject of crowns, our mistakes here are oftenest made in preparation of the root, contour and articulation.

First, in preparing the root it is not sufficient that we cut off the root and leave it the shape of a cone, but all enamel should be removed and the end of the root so shaped that it will resemble parts of two cones with their bases together. If this is done, and a band properly fitted, we can readily see that there will

be no space between the edge of the band and the root under the gum for the collection of blood and mucus.

In making gold crowns, the matter of contour is frequently overlooked and the band left perfectly straight, so that when the crown is put in place we have the same amount of space between the teeth at the masticating surfaces as at the gum line.

A crown so constructed will leave spaces which, during mastication, must necessarily become packed with food, with a consequent irritation and soreness of the gums.

In this class of work, as well as in all others, we should aim to come as near to nature as possible.

Last, but not least, in crown work, is articulation. Unless a crown is properly articulated it fails to fulfil its first and foremost mission in the mouth—that of mastication. The mistake here seems to be that many of us are still following the set forms of cusps, and select one that will fit our facing or band nicely, regardless of articulation.

It seems folly to expect that we can obtain a perfect articulation for the varied forms which are presented to us, by the use of set forms of cusps, such as die plates or punches.

It is vastly preferable to get the articulation from a die made from an impression of the antagonizing teeth, and thus be insured a perfect articulation with no grinding after the piece is finished.

Another mistake which some of us are still making is that of indiscriminate pulp capping. A freshly exposed pulp which has given little or no pain is a favorable case for capping, and should be given a chance for life, but by some operators this branch of work is carried to such an extreme that they will cap or endeavor to cap pulps which have been the cause of severe and prolonged odontalgia, and in this effort generally meet with failures.

Of all materials used for capping, iodo-formagen cement, which was so ably discussed by Dr. Kineo at our meeting last December, seems to give the best results.

Some commit the sin of omission in failure to impress forcibly on the mind of their patients the value of a good antiseptic mouth wash and absolute cleanliness in preservation of the teeth. Especially should the use of such a wash be urged, and even insisted upon after the insertion of crowns, bridges, or plates.

Our aim should be to recommend or prescribe some wash which is efficient in germicidal power, not poisonous, and which is pleasant to use.

The one preparation that fills these requirements for me is borolyptol. In examining the published tests of this preparation, we find that it is equal and, in some cases, superior in germicidal properties to a 1-1000 solution of mercury bichloride, and I venture to state that none of us care to take up the use of bichloride as a mouth wash to the exclusion of a preparation as harmless and pleasant to the taste as borolyptol.

A few of our errors in the prosthetic branch of our profession are made in the selection and setting up of the teeth, and in the vulcanizing of rubber as a base.

In selection we make the mistake of consulting our own ideal of what a perfect set of teeth should be, disregarding the requirements of the patient's mouth and face. The usual molds of block teeth are very unsatisfactory as to size, shape and relation one with another, and I think we should prefer to arrange the teeth for ourselves rather than have them arranged for us during their manufacture, as is done with block teeth. Therefore in a majority of cases we make a mistake by using them when we can obtain much more satisfactory articulation, arrangement and expression with the use of plain, single teeth.

Rapid vulcanizing is a mistake for which there seems to be no explanation. In all but exceptional cases, as soon as we get a case into the vulcanizer, it seems our ambition to see how soon we can get that rubber hardened, and get it out.

We have no excuse for this, as while a case is undergoing the process of vulcanizing, it makes no direct draft on our time beyond an occasional glance at the thermometer.

The toughness and elasticity of a rubber plate vulcanized one hour and thirty minutes at 280 degrees, with one-half or three-quarters of an hour to get it there, will, I am sure, prove ample compensation for the longer time spent upon it.

We all have at one time or another made mistakes in policy and in handling our patients. Among the greatest of these is the habit of deceiving children as to the pain of an operation or the intention to extract a tooth. By concealing the forceps and feigning to "just look at the tooth," we may be able to extract for a child with little trouble, but the confidence and trust of that child is lost to us, and by and bye, when he or she grows older,

we are almost certain to have a very nervous patient, and every one present knows what that means.

Another mistake in policy is that of having a uniform price for all amalgam fillings, which custom is followed by a great many of our profession. It is preposterous to charge no more for filling a large compound cavity which may consume an hour in preparation, filling and finishing, than we do for a simple cavity occupying perhaps ten to twenty minutes.

And right here I am stuck, and wish to ask the advice of those who take part in the discussion. Suppose we have in our practice some of the "Get your money's worth" class of patients who want to show lots of gold at every available opportunity. Is it our duty to humor them in this respect, or to lose them to some one who will?

AN INTERESTING SUPREME COURT DECISION.

Mrs. J. M. Walker.

In the 60th North Carolina Reports (Winston's) there is on record a decision rendered at Richmond Hill, December 3d, 1863, by a Judge of the Supreme Court, which is of interest to all dentists. It appears that John W. Hunter, a dental graduate of 1856, from one of the dental colleges in the State of Pennsylvania, claimed exemption from army service on the ground that being a surgeon-dentist he was a physician, and therefore exempt by Act of Congress. Owing to the dearth of paper and other printing materials at the time and in the place where and when this decision was rendered, it was never given newspaper publication, and was given to the dental profession for the first time by Dr. J. A. Chapple, of Atlanta, Ga., at the recent meeting of the National Association at Niagara Falls.

An Act of Congress exempting from army service "all physicians in the actual practice of their profession," the questions arose, What constitutes a physician? and Does the term "physician" embrace a surgeon-dentist? The record gives an exhaustive study of the derivation and definition of the word physician, including surgeon; the question was reduced to this: "Does a surgeon-dentist come under this definition, or is he a mere mechanics who cleans, plugs and extracts teeth without the aid of science?"

The question being a new one, the case was adjourned and evidence taken as to the course of instruction in dental colleges, and the knowledge which it was necessary to acquire in order to obtain a diploma and practice with skill.

The conclusion of the learned Judge, from the depositions filed, is given in these words: "I am satisfied that a regular graduated dentist is a 'physician.' * * * If a tooth has to be extracted, the 'surgeon-dentist' by his knowledge of 'physiology' ascertains the condition of the system, and by his knowledge of 'materia medica' administers the necessary alteratives to put it in proper condition. By his knowledge of 'anatomy' he finds how the tooth is inserted in the jawbone, and knows what instrument will extract it with as little pain as possible and without injury to the bone, and the depositions state that frequently 'surgeon-dentists' are called on to perform delicate operations on 'the facial parts' (the upper and lower jawbones) which require an intimate knowledge of the structure of the bones and the localities of the arteries, veins and nerves. In short, the teeth being more subject to decay and disease than any other part of the human body, I am satisfied not only that regular, educated dentists are physicians, but that the human family are much indebted to them for confining themselves to a 'specialty,' that is one branch of the profession, whereby that which was some years ago a mere mechanical art has become a useful and important science. It is therefore considered by me that John W. Hunter be forthwith discharged with leave to go wherever he will."

EXTRA PLIABLE EIGHTEEN CARAT GOLD PLATE.

By Naaman H. Keyser, D.D.S.

The following formula gives a very pliable gold plate, especially useful for an upper plate where the vault of the arch is unusually high, the rugæ prominent, or where, on any account, a soft, pliable, tough plate is required. The metals must be chemically pure. They may be obtained from refiners of photographic waste.

R. Pure gold	20 dwt.
Pure silver	6 "
Pure copper	16 grains.

Melt these together with plenty of borax as a flux. This gives a plate sufficiently ductile to be, with proper care, driven into hollows or swaged over sharp ridges without breaking. This is due to the percentage of copper being less than is usual in ordinary eighteen carat plate met with commercially. The addition of copper hardens the gold and makes it less ductile. According to Greenwood's "Metallurgy," edition of 1875, the maximum hardness is attained when the copper forms one-eighth of the alloy. Such an alloy is sufficiently hard for clasps or backings, for which it is particularly suited. It is a much better color than when platinum forms part of the alloy. All formulas for plate or solders should be based upon pure metals. Coin and the commercial metals are uncertain alloys.



ABSTRACTS AND SELECTIONS.

GUILD LIFE AND ANCIENT MEDICINE.*

By Wm. H. Gaylord, Esq., of Cleveland.

Guilds of various kinds and names have existed from the earliest Roman and Grecian period. They attained their highest prosperity in the Teutonic and Anglo-Saxon countries. The essential principle of the guild is the banding together for mutual help, mutual enjoyment, mutual encouragement, and to protect the living members, provide for the families of the deceased, and to establish dues and fines, and by these contributions create a fund for protection and assistance.

The word guild, or geld, was an old English word signifying a set fixed payment or contribution. The company of those who made this payment was the guild—the contributors. During the Middle Ages guilds, known as social or religious guilds, were almost as numerous as the towns or villages themselves, societies or associations organized to extend to guild-brothers every exercise of Christian charity, especially relief in old age, sickness, in imprisonment, in losses by fire, water or war; to aid by loans; burying the dead. Each member took an oath, paid an admission fee and yearly contribution. They held regular meetings, had an annual guild day, adopted and wore a particular distinguishing dress or livery. Legacies and gifts made to them they lent to poor brethren. They built and repaired roads, aided colleges, and founded schools. They were composed of men and women of all ranks. They grew unto great wealth and popularity. Kings and princes joined their ranks. Henry IV. became a member of the Guild of Holy Trinity at Coventry. Henry VI. joined the same guild. Henry VIII. and his queen are enrolled on the Guild of St. Barbara. The county of Cambridge had 50 guilds, Norfolk 909. In the time of the Reformation these guilds were abolished, and their property passed to the king and his courtiers; their guild halls became poor-houses, their pageants disappeared.

We are concerned to-night with another class of guilds, viz.: Craft Guilds. The craft guild was organized primarily and purely to protect the lives and property of brothers exercising or pursuing the same craft or trade. The town, the citizens of the town

* An address delivered before the faculty and students of Cleveland College of Physicians and Surgeons, at the General Hospital, January 26th, 1899.

owed a servitude, service either in war, rent, or some obligation to the lord of the manor. To protect their fellow craftsmen against undue, illegal or harsh exactions of the governing body of the town, to secure protection on their lives and property against other citizens—members of other crafts—the followers of each separate craft or trade organized to assist and stand by their fellow workmen. As communities grew in numbers, orders became more settled, the necessity of a guild for protection of personal liberty or securing life and property from violence ceased, or at least diminished; but with increase of population arose a new necessity. The craft must protect itself against the invasion of foreign craftsmen, and this the various guilds of craftsmen set about to do. The watchword was no longer protection of persons. A stranger coming to a town could not pursue his trade or craft until after he had become a freeman in the particular place or town where he desired to carry on his trade, and this freedom must be obtained from the craft in that town.

From very early times the different trades in London had their recognized quarters or precincts in the city, and each guild undertook to regulate its particular trade in its distinct precinct. They appointed overseers to inspect the work produced or goods to be sold. But the guild was as yet in its primary character, a purely personal association of fellow craftsmen, able to bind its own members, without authority to compel obedience from those outside its ranks. It was in the State, but not of the State. It belonged to the city, but did not embrace all the citizens. Its purposes were the good of the members of the guild. Workmen outside the guild it did not strive to aid. It had as yet no legal power to control them. As the object of the association of craftsmen was the regulation of trade, it was a necessary condition of the efficient working of the rules that all who carried on the trade should belong to the guild. No one was admitted who had not proved himself a proper workman and had not served a regular apprenticeship. After the care for skilful workmen the next concern of the guild was for the use of proper tools, and the application of well-adapted processes of manufacture. No member of the guild was allowed to possess tools, unless the same were testified to be good and honest, and the rules entered into the minutest details with reference to the method and times of working. It was especially forbidden in the strongest terms to mix inferior materials with better, to the detriment of the buyer,

or to sell patched-up articles as new. The public were especially protected against the spoiling of materials entrusted to the craftsmen for manufacture, and so guild brothers were obliged to assist a member who did not know how to go on with his work, lest the materials be spoiled in the manufacture. Nominally to insure good quality of wares, guild statutes always prescribed that no craftsman should work longer than from the beginning of the day until curfew, and never at candle light. Thus they were insured leisure for fulfilling their domestic and political duties, and a safeguard against the competition of any over-zealous for gain.

Holidays were numerous and long. The weavers prohibited work between Christmas and Purification Day (February 2d). Work was strictly prohibited on Sundays, festivals, and on Saturday, or the eve of a double feast, after noon had been rung. Ruinous competition was contrary to the spirit of brotherhood, hence no guild associate was to entice away a brother's customer or servant. Working for a customer, who was indebted to a brother craftsman, was strictly forbidden. Any member becoming poor from adventures of the sea, from advanced price of merchandise, or by borrowing or pledging, might claim relief from the guild's funds. When members were out of work, no member could work with non-members. The guild stood like a loving mother, providing and assisting her sons in every circumstance in life, insuring them a decent burial, guarding and caring for their widows and orphans. The soul of the craft guild was its frequent meetings of members of the same craft to debate on the condition and protection of their particular trade. The meetings were opened and conducted with solemn ceremonies, inspiring awe and respect for the guild organization.

The guild brothers elected their own masters and wardens. The brethren passed ordinances to guard the customs of the craft. Their wardens executed them as far as lay in their power. But this power was limited, because as yet it lacked the authority or sanction of law. The municipality tolerated the guilds and from them collected taxes, but it granted them no powers or authority. The crown was feeble, its exactions from the companies great, and hence it arises that the guilds, as a return for assessments, demanded and secured a charter. The ordinances of the guilds received the sanction of the crown and municipality. The guild is invested with police power. In London, in the time

of Edward II., an ordinance was passed forbidding any person, whether an inhabitant of the city or not, to carry on a trade, unless he received the freedom of the city in that trade. The law prescribed that none could become freemen, except by permission of the guild. The guilds were empowered to inspect goods, search for unlawful goods, secure the punishment of the offenders before the mayor and municipality. In '49 Edward III., by an enactment of the whole assembled commonality of the city of London, the right of election of all city dignitaries and officers, including members of Parliament, was transferred from ward representatives to the guilds. Thus, armed with the power of the municipality, guilds multiplied rapidly. Each trade organized, until, besides the twelve great companies, including the mercers, grocers, drapers, fishmongers, goldsmiths, skinnners, merchant tailors, haberdashers, salters, ironmongers, vinters, clothworkers, we find the apothecaries, armorers, bakers, barbers, basketmakers, blacksmiths, brewers, carpenters, clockmakers, cooks, coopers, curriers, cullers, dyers, fan makers, glass sellers, glaziers, gloves, gunmakers, ironholders, masons, weavers, stationers, saddlers, plasterers, playing card makers, wheelwrights, tallow chandlers, and what not, some 100 or more, of which 72 survive; also the white and brown bakers, pepperers, tanners, marblers, cheesemongers, combmakers, spicers, and an infinite variety which have disappeared.

Soon the various trades outgrew the severe restrictions of the guild and its ordinances. New machines were invented, new methods of manufacture sprung up far in advance of the ancient means and methods of the guilds, population increased rapidly, and the craftsmen outside the guilds far exceeded in numbers the guild brethren. They resisted, and successfully resisted, the attempt to be controlled by the guild men. They denied the right of the municipality to invest the guilds with the power to control any trade, and they triumphed. The authority of the guild thus waned and disappeared. The guild itself, as an organization, would also have disappeared, except for one element in its constitution. The guild was always a semi-religious or half ecclesiastical organization. Most guilds adopted a patron saint. The fishmongers adopted St. Peter; the drapers, the Virgin Mary, Mother of the Holy Lamb or Fleece; the goldsmiths, St. Dustan; the merchant tailors, St. John the Baptist; the vinters, St. Martin; the barber surgeons, Sts. Coserio and Damien. The

guild provided schools for the children of its members. It established hospitals and poorhouses for the families of deceased members. When the guilds attained the dignity of chartered companies, empowered to hold real estate, and continue in perpetuity, they became the recipients of vast gifts, trust estates and lands, all of which in time have become valuable. Fortunate investments at an early day in London, and the vast increase in the value of land has swelled the fortunes of some guilds or living companies to enormous fortunes. The mercers have to-day an annual income of more than \$400,000, the drapers \$350,000, the skinners \$250,000, the haberdashers \$100,000. The gross annual rental owned by them in the city of London is \$2,500,000, and outside of the limits they own nearly as much more. Thus, though the guilds have lost control over the trades which they originally represented, they yet possess vast powers, and are mighty influences in the distribution of these trusts.

In one direction the guild has not lost its importance in municipal life. Some time in April, 1897, the flourishing city of Cleveland elected a mayor, and almost continuously since that date our enterprising politicians have been busy nominating his successor. At the present time heads are bobbing up at almost every street corner to be set up as targets for a nominating convention. Now, should you stand at the Bank of England, or on the steps of grand old St. Paul's Cathedral on the morning of November 9th in any year, you would see winding down Cheapside, and halting at the law courts at Temple Bar, a long and gorgeous procession of guildsmen, guild liveries, guild pageantry, escorting in a vast carriage of state, glittering with gold and splendor, the new mayor-elect of London—the lord mayor, who is that day to be presented to the crown and its law officers. But when and how was he elected, say you? We have been here in London many days. We have read the journals. We have mingled with the citizens. We have never read in the papers, no Londoner has ever hinted, that a mayor was to be elected. We have neither seen nor heard of voting booths or voters, or shop clubs, or wrangling politicians, or columns of abuse in the daily journals of rival candidates. By whom, when and where was this high lord mayor, this man second only to the sovereign, the head of the richest municipality, chosen?

He is chosen to-day, as his predecessors have been chosen for more than 500 years. A guild is composed of a warden,

assistants, common members, called sometimes yeomen, and liverymen. The liverymen are selected by those who can wear the livery of the guild, the wardens and his assistants. London is divided into wards. Each ward elects, for life, an alderman. The board of aldermen elect the mayor. A court called a court of common hall, comprised of the mayor, four aldermen and the liverymen of the guilds, propose each year on Michaelmas day two eligible men to this board of aldermen, one of whom they must choose as mayor. But to be eligible for election as mayor he must first have been a lord high sheriff. On Midsummer's day this same court of common hall, without the intervention of the board of aldermen, elect the sheriff, the city chamberlain, the bridge masters and the city auditors. Now, all this may be very disappointing to the politicians, and reduce the number and revenues of ward heelers, but it secures, and for hundreds of years has secured quietly, without turning the city into tumult for months, mayors for the vast city of London. And London has never found itself in the embarrassing situation of Cugahoga county to-day, which does not know whether it has one sheriff or two, or, if one, which one.

The guild of barber surgeons, in which we are more particularly interested to-night, has existed in England as a chartered company since 1461. But we trace the order of barber surgeons back to the remotest ages in India, where they flourished and occupied a powerful and important position. In early times the art of surgery and practice of medicine was exclusively in the hands of the monks, and in Egypt and India the priests both baptized, circumsized, phlebotomized, cauterized and cured. **The** barbers were early associated with the monks as assistants. Thus, by their association, they acquired more or less skill as surgeons. This continued until 1163, when the Council of Trent was held under Pope Alexander III., when a bill was promulgated forbidding the clergy to practice surgery, on the ground that the shedding of blood was incompatible with the sacred office, but they continued the practice of medicine. Thus the practice of surgery at an early day fell into the hands of the barbers, and to this they naturally and more and more combined the practice of medicine. The guild of barber surgeons was first incorporated by the young king, Edward IV., in 1462, for the following reasons and purposes: "Edward, by the grace of God, king of England and France and lord of Ireland. To whom these present

letters shall come, health. Know ye that we, considering how our beloved, honest and free men of the mystery of barbers of our city of London, exercising the mystery or art of surgery, as well as respecting wounds, bruises, hurts and other infirmities of our liegemen, have for a long time undergone and supported, and daily undergo and support, great and manifold applications and labors, and also how, through the ignorance, negligence and stupidity of some of the said barbers, freemen of our said city, as of other surgeons, foreigners and not freemen of said city, and who daily resort to said city, and in the mystery of surgery are not sufficiently skilful, whereby very many and almost infinite evils have before this time happened to our liegemen in their wounds, hurts, bruises and other infirmities on account of their defective healing and curing, from which cause some of our said liegemen have gone the way of all flesh, and others have been by all given over as incurable and past relief, and it is to be dreaded that similar and greater evils may in the future arise on this head, unless proper remedy is by us speedily provided. We therefore heartily, weighing and considering that such evils do happen to our liegemen for want of the examinations, corrections and punishments by a due supervisor of such barbers and surgeons, are sufficiently instructed in said arts and mysteries, have at the humble request of our aforesaid honest freemen of said mystery of barbers and surgeons, granted to them the said mystery, and all men of said mystery to be in name and deed one body and one perpetual community, and that two principals of said community may, with the consent of twelve persons who are best skilled in surgery, elect each year two masters of the utmost skill to rule or govern the mystery or community; that said masters and community may have a perpetual seal and succession, and may acquire and possess in fee and perpetuity lands, tenements, rents and other possessions whatsoever, and to make laws and ordinances for the wholesome government, superintendence and correction of said mystery, according to the exigency of the necessity, as often and whenever it may be requisite, and without leave, let or hindrance of us, our heirs, successors, justices, escheators or sheriffs. We further will and grant for us our heirs and successors that said masters of aforesaid community and their successors forever shall have the superintendence, scrutiny, correction and government of all and singular the surgeons of the city who are freemen, and all foreign sur-

geons in any wise practicing the mystery of surgeons in the city or suburbs, and the punishment of them for their offences in not perfectly following, practicing and using said mystery, and also the superintendency and scrutiny of all kinds of instruments, plaisters and other medicines and their receipts by such barbers and surgeons, given, applied and used for our liegemen for healing and curing their wounds, bruises, hurts and such kind of infirmities; that no person exercising said mystery, or any foreign surgeon whatsoever, shall in the future be admitted to follow, practice or exercise the mystery of surgeon in any wise within said city or suburbs, unless first approved by the masters of the community as skilled in the mystery. Also that neither the masters nor members of the community shall be summoned or approached on any assizes, juries, inquests or other recognizances."

Surely here are powers enough. Long prior to this curious grant the barber surgeons had claimed and exercised great power over their craft. The archives preserved in Guild Hall have many entries or ordinances regulating them as early as 1307. In 1308 Richard Le Barber is presented to the board of aldermen of London and confirmed by it as supervisor and master of the guild, and thereupon, on solemn oath, he agrees each month to scrutinize the trade, and if he should find any keeping brothels or acting unseemly and to scandal of the trade, to disbar them. In these days of Edward II., and long before, the barbers superintended the baths, and hence the authority. In 1309 several entries of their being made freemen of the city. In 1310 Gerard the Barber was sworn in as keeper of the gate of Newgate, and often subsequently they were appointed keepers of the gates and empowered to keep strict watch that no lepers entered the city, a charge doubtless conferred because of their surgical knowledge or skill in medicine. In the fiftieth year of Edward III., 1376, they complained to the mayor and aldermen against unskilled practitioners in surgery, and prayed that two of their masters be appointed inspectors, and that none should be admitted to practice except upon their examination and approval, and in 1410 this power is again granted, with the significant addition that this privilege should be enjoyed by them without the scrutiny of any person or persons of any other craft or trade, either as to shaving, making incision, blood-letting, or any other matters pertaining to the art of barbery or surgery. Five years later, April 10th,

1415, we find that it is intimated to Thos. Fanconer, the mayor, and the aldermen, and not without alarm, how that some who are inexperienced in the art of surgery do oftentimes take under their care many sick and maimed persons fraudulently obtaining possession of very many of their goods thereby, by reason whereof they are oftentimes made to be worse off at their departure than at their coming, and are oftentimes maimed, to the scandal of such skilful and discreet men as practice surgery. And said mayor and aldermen, wishing to obviate an evil and scandal such as this, and provide a remedy, and finding that said barbers, by themselves and without the scrutiny of any other persons or craft, have supervision and scrutiny over all men practicing in the city the art of barbering or practice of surgery, Simon Rolf and Richard Wellys, citizens and barbers of London, practicing surgery, as well for their knowledge and probity as for difficult cures that have been sagaciously performed and effected by them, were empowered to prosecute and punish all these recreant persons, who were more in dread of loss and payment of money than the dictates of a safe conscience. But this power was not exercised without opposition. Coeval with this guild of barber surgeons there existed a fraternity of surgeons no way connected with the barbers, like them existing by prescription only and unincorporated. It does not appear to be large, perhaps less than a dozen—never exceeded twenty—but yet it was vigorous enough to oppose these grants, and in 1423 it also obtained from the mayor and aldermen grants. Armed with this authority, the surgeons' guild sought to interfere with and block the scrutiny of the barber surgeons, but their numbers were too few, or the latter too well established, for in the reign of Henry VI. the power of the barber surgeons was again confirmed, and it was a third time solemnly ordained that the masters of the faculty of surgery within the craft of barbers do exercise full power. The barbers became incorporated, as I have stated, by Henry in 1462. Armed with this corporate power, they grew, multiplied and waxed great—so great that in 1493 the poor surgeons' guild or fraternity, deeming a half a loaf better than no bread, began to work on amicable terms with them, and a union was effected. In 1511 an act was passed infringing the privileges of both societies, and the power of licensing surgeons placed in the hands of the Bishop of London and Dean of St. Paul's. Dubious times these for the student. He must secure the license of the bishop

and dean, but if he did, and set up shop, the barber surgeons would prosecute him. If he secured the favor of the barber surgeons and surgeons, the bishop and dean hurled their anathemas at his devoted head. Surely a desperate Scylla and Charybdis. But this union of Church and the medicine became soon very unpopular, and Parliament cut the Gordian knot by relegating the cure of souls to the bishop and dean, and enacting that it shall be lawful for any person being the king's subject, having knowledge of or experience in the knowledge of herbs, to minister in and to any outward sore or wound, according to their cunning. The original charter of Henry IV. was confirmed by Henry VII., Henry VIII., and by Elizabeth in 1560, and by James in 1605. And the reason is not far to seek. These grants are voluntary, for the protection of liegemen. They were given without price. But the king must live and support the pageantry of the court and entertain visiting sovereigns, and there was no more natural source to ask for loans or solicit favors than from those to whom they had been granted. In 1567 Elizabeth inaugurated the first State lottery, and under a very preëemptory mandate to the mayor and livery companies the barber surgeons put in £40, nominally for the use, profit and benefit of the hall. In 1596 £40 ship money is nominally lent to the city. In the same year £30 for paying soldiers' wages and other charges for the Spanish voyage sent out under Sir Walter Raleigh by her gracious majesty to annoy the king of Spain. In 1598 her majesty commanded, in the form of an invitation, £100 for suppressing rebels in Ireland. In 1614 the king determined to borrow £100,000 of the city. The barber surgeons were assessed £600. Whatever the king, or even the city purposed to do, either defend, extend or magnify the throne—kingdom or city—the guilds stood sponsor with their purse. The frequent and large levies on this guild shows its power and wealth. In the barbers' hall in London is a painting by Holben, representing the granting of the charter by Henry VIII. The brethren, who receive it on bended knees, are accurate portraits of the members. There is found Dr. Bulls, the largest practitioner of his time; Dr. John Chambre, the king's physician, who attended the queen at the birth of Edward VI. and Anne Boleyn; Thomas Vicary, surgeon to St. Bartholomew's and sergeant surgeon to Henry VIII., Edward VI., Mary and Elizabeth; Sir John Ayleff, surgeon to the king; Richard Ferris, master surgeon to Elizabeth.

Among the barber surgeons' plate is found a silver cup, the gift of Henry VII. in 1540, richly embossed with the rose, fleur de lis, portcullis and lions' masks; a silver cup and cover, the gift of Charles II. in 1678, the stem and bowl an oak tree with four pendant acorns, the lid a royal crown; two chaplets with perforated silver oak foliage borders; a large chased silver punch bowl, the gift of Queen Anne; several rich tankards and fine plate.

In 1636 the guild had under lease a large plot of ground in Minkwell street, London, and here they erected a theatre or hall for the delivery of lectures and for anatomical purposes. It was the only place in London where lectures were given. The famous Inigo Jones was the architect. The theatre was elliptical in form, four degrees of seats of cedarwood, adorned with figures of seven liberal sciences and twelve signs of the zodiac. It contained the skeleton of an ostrich, two human skins on wood frames, male and female, in imitation of Adam and Eve; a mummy skull, skeleton of Atherton with copper joints, figure of a man with all muscles in due proportion and place; the skeletons of Cambery Bess and Country Tom; four malefactors granted by law to the college. Whether this sufficient material or the supply was always furnished I cannot tell. Hogarth has depicted the dissection of a criminal in this theatre, with the skeletons above described in the niches in the wall.

In 1744 the long-slumbering animosity between surgeons and barbers reached a climax. The surgeons, many of eminence, naturally chafed under a system requiring diplomas to be signed by governors, two of whom were barbers. Their alliance with barbers naturally and necessarily became a restraint on advance, and the exercise of their profession under charters and by-laws antiquated in form was a hindrance to be avoided at any cost. In Act 18, George II., January 31st, 1745, surgeons' petition asked to be divorced. The House referred it to committee. The barbers resisted, but June 25th, 1745, the bill passed divorcing them, and by Act 18, George II., surgeons were enacted into a separate corporation. Barbers henceforth, the masters, governors and commonality of the mystery of barbers of London, and the words "and surgeons" were henceforth to be omitted from the seal.

Divorced from this incongruous association, and relieved

from this incubus, surgery and medicine were free to pursue an untrammelled path to great and merited triumphs.

Southey says man is a gullible animal. Quacks on medicines, quacks on religions, quacks in politics know this, and act upon that knowledge. There is scarcely any one who may not, like a trout, be taken by tackling. It does not require any profound study of men, or vast survey of life to discover that this witticism is underlaid with a large substratum of truth. At every street corner we are met with loud, persistent appeals to purchase for an insignificant single cent a Press, a World, or some other high-sounding journal, which, with and besides the news—suicides and elopements, bank robberies and base ball, charity balls and presidential receptions, messages and news—offer to a trusting and suffering public the most marvelous remedies at the most beggarly cost. For five cents you purchase a 32-page folio Sunday edition, fairly bristling with remedy and disease. For nothing, for the mere asking—nay, for the mere taking and carrying away—every citizen literally or individually inclined can line his table with almanacs, which diagnose every ill of life and furnish at ruinous rates priceless remedies. The true physician devotes years to study, years to practice, years to service, exacting toil, care, anxiety, and to the skilful treatment and relief of his fellow-men, and dies leaving possibly a competence to his family. The tall chimneys of the manufacturer or compounder of some unknown pill, powder or pectoral continually belch forth paying smoke. He drives and lolls in a gorgeous equipage. He furnishes and maintains elaborate and richly adorned parlors, overcrowded with susceptible men, women and children. He dies, and leaves a princely fortune, with which his bereaved widow and sorrowing children console themselves in the most luxurious apartments in the best hotels at most fashionable springs. Crawling feebly through your streets, stretched and suffering on beds of sickness, buried beneath stately monuments, are a vast army of confiding men, who, abandoning the care and skill of the physician whom they knew of, whose training and experience they had personal knowledge of, rushed blindly to the care and protection of men of whose training they had only read, and whose ability they knew little, and of whose medicines and remedies they knew absolutely nothing.

A witty Frenchman has said: "Nature is fighting with disease. A blind man—armed with a club—the doctor comes to

settle the difference. He first tries to make peace. When he cannot do this he lifts his club and strikes at random. If he strikes disease, he kills it. If he strikes nature, he kills the patient." Napoleon once said to his famous physician, Dr. Centomarchi: "Believe me, we had better leave off all these remedies. Life is a fortress that neither you nor I know anything about. Why throw obstacles in the way of its defence. Its own means are superior to all the apparatus of your laboratories. Medicine is a collection of uncertain prescriptions, the results of which, taken as a whole, are more fatal than useful."

The witty Sidney Smith tells us that the physician is the man who pours drugs of which he knows little into a human frame of which he knows less—that keen old epigrammatist,

Nature and sickness fight—a man the prize.
If nature wins, he lives; if sickness, dies.
Blind men called doctors come the fray to part,
With random strokes of weapons forged by art.
If chance they hit the foe the day's their own;
If nature gets the hurt the patient's gone.

That polished essayist, Addison, thrust his trenchant pen into the profession with this assault: "If we look into the profession of physic we shall find a most formidable body of men. The sight of them is enough to make a man serious, for we may lay it down as a maxim that when a nation abounds in physicians it grows thin of people."

In that famous old publication, the *Gentleman's Magazine*, you have read of the supposed discussion between the souls of a bishop, a doctor and an actress upon the merits and virtues of their various occupations here below. The doctor, in his loudest, fiercest tones, informs the actress that a woman with her tongue could make purgatory of a paradise. She: A man of your skill would make immortality an impossibility and paradise a desert.

But notwithstanding all this obloquy, this enlivening wit, these polished lines of the essayist and epigrammatist, Byron gives us these four lines of truth:

This is the way physicians mend or end us,
Secundem artem, but although we sneer;
In health—We call them to attend us
Without the least propensity to jeer.

The science of medicine and surgery has quietly, laboriously, nobly pursued its noble and beneficent work of relieving the sick and healing the maimed.

It has traced out and discovered anæsthetics to allay and relieve the pains which rack the body, and bestow upon the tortured mind calm repose and balmy sleep. It has traced the ebbing and flowing of life in his remotest arteries and veins. It has mapped out his nerves and muscles, and learned their nature, their disease and remedy. It has sought out and discovered the lurking place of disease in man's innermost organs. It turns on the full and dazzling X-rays, and views nature at work in its most secret laboratories. It bestowed on the surgeon's knife a skill almost divine. It fearlessly assaults and effectually routs the destroyer in its most secret hidings. It has discovered the germs which beset our pathway in the street, throng at our feasts, encamp about our bedside in the silence of the night, minute, yet numberless and mighty foes, which threaten life in all climes and all peoples, in all employments and all enjoyments of life. It is successfully, vigorously, surely routing this pestilence, which walketh at noonday, the sickness which wasteth at midnight.

Let wit deride, the essayist detract, the vulgar scoff, the ignorant deride medicine and its cures, surgery and its skill; yet our truth remains. A profession, whose office and aim has and can so relieve our ills and restore life, health and happiness, deserves, and should receive, the highest praise and support and encouragement of a humanity always exposed to ill and suffering. It has ferreted out the infinitesimal microbe at its earliest advance, and prepared for its destruction. It has demonstrated that the skill which detects disease is as wonderful as the treatment which cures; that prevention of ill is better than remedy; that means to prevent epidemics are wiser than medical dispensaries; that it is better for the State to exalt its physicians as watchers and warders at the gates to detect and parry disease in its earliest onslaught, than to build hospitals. No longer is the weary, overworked physician the humble custodian of the ill, and healer of the afflicted and weak. He is the protector and guardian of the well, the safeguard and savior of the robust and strong. As the guardian and protector of the public health he comes the best, the highest promoter of the welfare and prosperity of the State and its citizens.

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ADVANCES IN INORGANIC CHEMISTRY.

The past few years have seen most remarkable advances in inorganic chemistry. Previous to this scientists generally had about adopted the notion that until newer methods of investigation should be invented, discoveries in inorganic chemistry would be limited to the description of new and unusual combinations of elements.

Some three years ago the scientific world was startled from its lethargy in this respect by the announcement that Lord Rayleigh and Professor Ramsay had discovered a new element in the air. Ramsay, the codiscoverer of argon, has described during the past year three other hitherto undescribed elements that exist in the atmosphere. These he has called krypton, the hidden, because so long concealed; neon, the new, and metargon, an element having certain analogies to argon. To these new atmospheric elements an American, Mr. Charles Brush, has added a fifth, etherion, so-called because of certain points of resemblance to the ether that pervades all space. This substance has not yet substantiated its right to a place in the list of elements, for while certain very interesting evidence of its existence is at hand, as yet it has been impossible to obtain its spectrum.

Two other elements, it is claimed, have been discovered during the past year. One of them, polonium, has been studied in its sulphate, which occurs in pitchblende, a substance found in Poland, hence its name. It resembles uranium in its chemical properties, and its compounds have been observed to emit like those of uranium an invisible radiation analogous to the Röntgen-rays. The other new element, coronium, was observed in the sun's atmosphere, and it is believed to be very much lighter than hydrogen.

We welcome sincerely this reawakening of the ardor of discovery in inorganic chemistry at the end of the century whose beginning saw such rapid strides in the just awakening science. The discoveries, and especially the newer methods brought into play, are of special interest to medical men because they open up a prospect of new applications of inorganic substances in therapy, and a better understanding of the therapeutic effects of old ones. The new discoveries in the air are particularly interesting because it had been thought that the ultimate elements of this substance at least were long known. They throw an in-

teresting light on certain therapeutic opinions. There are those, and men of prominence, too, who have insisted that the ultimate constituents of such natural medicinal agents as the extracts of plants or of the mineral waters were not known. What were known, they said, were merely the gross constituents; some of the finer components were missed entirely, and the method of their combination was a complete mystery. Hence, the better results to be obtained very often from the crude drug, or its extract than from any of the chemical substances obtained from it. Hence, too, the better effect of the natural mineral water than of any artificial imitation of it. Whether the new era of discovery that seems to be opening up in inorganic chemistry will bring any nearer a definite solution of these important questions is for the future to decide, but any advance along the line toward the ultimate solution of them is encouraging and gives promise of great things for the new century. *Med. News.*

THE METHODS OF THE QUACK.

Here is one item for the information of the public concerning the methods of the quack dentist. We have taken the trouble to secure accurate information concerning the manner in which impression compound is used by the cheap, advertising dentist. He simply uses it over and over with never a thought or a care about infection. Could anything be more vile and filthy? Just consider for a moment the condition of this impression compound after it has been the round of a dozen patients or so. It is simply reeking with every form of bacteria to be found in that natural incubator of microorganisms—the human mouth. Think of the conditions of some of those mouths, you dear credulous public, you in whose breast eternally springs the hope that somehow something may be got for nothing, that somehow a miracle will happen, that somehow a quack may be found who will not lie, think of that impression compo introduced into your mouth after it has made the acquaintance of a score or two of miscellaneous mouths before your turn arrived. That mass of gum in your mouth contains bacteria and bacterial débris enough to write a large volume about. It may contain the whole infernal brood of all the contagious diseases. It would almost be a wonder if it did not. It is not a pleasant subject to think about, or talk

about, or write about, is it? The medical and dental journals are filled with descriptions of methods of sterilization. We talk about sterilizing our instruments, our hands, our rooms. We advise a law for securing the sterilization of second-hand clothing before its sale is permitted. We organize movements for preventing the spread of tuberculosis and other infectious and contagious diseases, and yet here in our midst the dental quack, with his specially devised facilities for the transmission of almost every deadly disease, flourishes unmolested. No, on second thought, we do not think the work of crushing the dental quack need be so very arduous if the right steps are taken. Just lay the bare, bald, nauseating facts before the public, and the public will dispose of the dental quack.

The Dentist.

PERCARBONATES.

MM. Constam and A. von Haussen announce that they have discovered in the percarbonates a new class of oxidizing substances. On electrolyzing a saturated solution of potassium carbonate and gradually lowering the temperature, the disengagement of oxygen at the anode gradually diminishes and finally ceases at about -10° C. At the same time potassium percarbonate, $K_2C_2O_6$, is formed as a bluish amorphous powder. It should be quickly thrown on a filter and dried over phosphoric anhydride, as it is very hygrometric and decomposes water at ordinary temperatures, the bicarbonate being formed. When gently heated, oxygen and carbon dioxide are given off, the normal carbonate being left, and in the presence of oxidizable matters it acts as an oxidizing agent. But it can also act as a reducing agent, manganese dioxide being converted by its action into the carbonate. The authors conclude, therefore, that the new body is the neutral carbonate of potassium peroxide. Like the higher alkaline oxides and the alkaline earths, it produces hydrogen peroxide in the presence of acid.

Phar. Jour.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

THE WISCONSIN CASE.

The gratification so generally expressed at the amicable adjustment of differences between the National Association of Dental Faculties and the National Association of Dental Examiners has been somewhat marred by the unexpected refusal of the Wisconsin State Board of Dental Examiners to comply with the agreement entered into by the national organization.

It will be remembered that Dr. P. T. Diamond, a graduate of the Chicago College of Dental Surgery, brought against the Wisconsin Board a mandamus proceeding to compel the said board to issue to him a license to practice, with the result that the Superior Court declared the refusal of the board to issue to Dr. Diamond a license to practice dentistry in the State of Wisconsin to be "wholly unjustifiable."

By the following letter to Dr. Brophy, Dean of the Chicago College of Dental Surgery, from the attorneys representing Dr. Diamond in his suit, it will be seen that the Wisconsin State Board of Dental Examiners not only refuse to be bound by the action of the general organization, but are resolved to push to a final issue in the Supreme Court of the State their appeal from the decision of the Superior Court:

MILWAUKEE, August 12th, 1899.

Dr. T. W. Brophy, 126 State St., Chicago, Ill.

DEAR DOCTOR:—As you are aware, a meeting of the State Board of Dental Examiners took place yesterday in this city for the ostensible purpose of carrying out the recommendation of the National Board so explicitly made at the recent meeting at Niagara Falls. Nothing could be more plain and explicit than

the recommendation of such National Association, which ought to be looked upon as a command by members thereof.

I have to report, however, that our State Board have assumed to be wiser than the National Association, and have positively declined to follow or respect the mandate of the central body. The State Board refuses to recognize the diplomas of your college and others similarly situated, and leaves no course open but to continue the litigation. We shall therefore, unless ordered to the contrary, embrace the first opportunity to crowd the case to a final hearing and allow the National Board to deal with its recalcitrant members.

Very respectfully yours,
(Signed) QUARLES, SPENCE & QUARLES.

The decision of this case will be awaited with interest; it should also be awaited with calmness and accepted with equanimity. Harsh epithets and angry criticism can only aggravate passion and intensify antagonism, thus making more difficult harmonious and coöperative effort for the elevation of dentistry through advancement in its educational methods and requirements.

To that especial work the best energies of the two national organizations are now directed, and it is a task not so free from complications and difficulties that those engaged in its prosecution can afford to waste time and energy in petty squabbles and reciprocal recriminations. The need of the hour is a broad, liberal conciliatory spirit, which, unswayed by individual defections, will deal with the difficulties and complications sure to arise with wisdom, discretion and fairness.

Reviews.

INTERSTITIAL GINGIVITIS; OR, SO-CALLED PYORRHOEA ALVEOLARIS. By Eugene S. Talbot, M.D., D.D.S., Professor of Dental and Oral Surgery, Northwestern University, etc., etc. With seventy-three illustrations. Philadelphia: The S. S. White Dental Manufacturing Co. 1899.

"Some books," says Bacon, "are to be tasted, others to be swallowed, and some few to be chewed and digested;" to the last named class must surely be assigned this, Dr. Talbot's latest contribution to dental literature.

Much of the difficulty hitherto attending the investigation

of what has here been termed "interstitial gingivitis" has been due to the difficulty of obtaining from the human subject specimens *in situ* from cases of known clinical history. This obstacle to original pathological research our author has to a great extent overcome by turning from man to to man's faithful friend and ally, humble sharer of his joys, his sorrows, and, unhappily for the dog, some few of his vices.

It has long been known that, in common with man, the highly domesticated dog is the victim of many disorders associated with the digestive and assimilative functions, such as rheumatism, cutaneous eruptions, gastric and intestinal diseases, as well as a long line of reflex neuroses arising from functional disturbances and organic lesions. Happily for science, Dr. Talbot has demonstrated that, also in common with man, the house dog has paid, and is paying, the penalty of vicious feeding and perverted nutrition in dental and maxillary degeneracy, and that to the investigator they furnish "every phase of disease of tooth and jaw known to the human subject."

For the purposes of scientific research this is an important and significant fact, and one which Dr. Talbot was the first to put to practical use in scientifically conducted investigations in dental pathology. From sections of the jaws and teeth of dogs he has secured a series of superb micro-photographs, reinforced by similar sections from sheep, and also from the human subject, in which are shown the teeth and adnexa both in health and disease.

Space will not permit a detailed statement of the pathology of interstitial gingivitis or resultant pyorrhea, as thus illustrated. In brief, as explained by the author, they show acute or chronic inflammation of the gum tissue, the periosteum and peridental membrane. The inflammation, extending into the alveolar process through the Haversian canals and blood vessels of Von Ebner, frequently results in its destruction either by decalcification, or by lacunar absorption through osteoclastic action. If the process is simply the removal of lime salts (halisteresis) leaving the organic matrix or cartilage of the process intact, the author is of the opinion that restoration may occur, provided the matrix contains osteoblasts. After the destruction of the matrix he regards such restoration as impossible, and the ultimate loss of the tooth inevitable unless it can be securely attached to its fellows for support. Lacking this he states that the sooner it is

removed the better, as the presence of a loose, diseased tooth keeps up inflammation in the surrounding tissue. From this it will be seen that Dr. Talbot is not to be counted among those more fortunate practitioners who are able to cure even the least hopeful cases of pyorrhea alveolaris.

The author discredits the claim that phagadenic pericementitis has its seat in special glands, described by Black as to be found in the gingival tissues and peridental membrane, and thinks it probable that the structures referred to merely simulate glandular structures, and are really epithelial cells; these are shown in some of Dr. Talbot's micro-photographs, and are described by him as arranged in single or double rows or loops, or sometimes in clusters of three or more.

Nearly all the micro-photographs of gum tissue reveal the presence in the outer border of the gingivus of a pocket or *cul de sac*, which the author claims to be the first to describe. His statement is that these pockets are very large and deep in some cases, and that they are frequently situated near the gum margin, sometimes near the union of the submucous and peridental membranes. In these pockets it is claimed that *débris* often accumulates and through chemical decomposition becomes a fruitful source of irritation and inflammation.

With regard to the etiology of interstitial gingivitis the author's views are that it is not the result of specific germ infection, and is not a purely local disorder, but rather the local manifestation of a large number of systemic conditions, among which are enumerated "syphilis, tuberculosis, mercurialism, plumbism, brass poisoning, lithæmia, nephritis, gout, rheumatism, alcoholism, scurvy, nervous diseases, pregnancy and old age."

Among predisposing factors considerable importance is justly attached to heredity and the structural degeneracy of teeth and jaws in civilized man; in whom the maxilla tends to narrow and the palatine vault to increase in proportionate height, the alveolar process thus becoming elongated, thin, and as a consequence, less stable and more susceptible to trophic changes than the thick, strong and well nourished alveolar walls of more primitive man.

Stress is placed upon the influence on the disease of blood currents surcharged with organic salts, as they so often are after the osseous system has attained its growth and cannot further utilize the superabundant supply. This condition is, of course,

most common in middle life when the powers of excretion are on the wane, and inorganic material, failing of elimination, accumulates along excretory tracts, as in the kidneys or bladder, or upon the teeth at points of salivary outflow. The author teaches that if the blood be thus surcharged with inorganic material the occurrence of inflammation in any connective tissue may result in deposits through the capillary system, and that in this manner deposits upon the roots of teeth may take place, such deposits being the *result* of inflammation and pus infection and not its cause. This position certainly does not strengthen the view held by many that a calcareous deposit is the true *materies morbi* in the disease, and that with its entire removal pyorrhea will disappear.

The author finds too that roots of teeth entirely denuded of peridental membrane and bathed in pus accumulate large quantities of calcic deposits direct from material furnished by absorption of the alveolar process.

In connection with his investigation of the theory that uric acid or deposits of urates are causative of pyorrhea alveolaris, the author made, or had made, by different chemists at different periods nine hundred and fifty examinations, only five per cent. of which gave positive evidence of the presence of uric acid in the deposits upon the teeth. His conclusion is "that interstitial gingivitis is not due solely to uric acid; that uric acid when found is merely an expression of uric acid diathesis and a coincidence, since it is not always present in the gums and tartar of patients attacked by either gout or the uric acid diathesis."

It may be here remarked that the importance of uric acid as a causative agency in gouty and rheumatic affections is somewhat discredited by the results of recent research. These seem to indicate that the chief morbid principles in so-called uric acid affections are alloxuric bases resulting from perverted metabolism, especially of nuclein, the nitrogenous constituent of cell-nuclei. From nuclein uric acid is derived by oxidation, and from it also the alloxuric bases may be formed when oxygen is deficient. According to this view uric acid is a non-soluble, non-toxic substance, as are its salts; whereas alloxuric bases are both soluble and in a marked degree toxic. This, if a fact, is of great significance both in physiological chemistry and in therapeutics; for if uric acid as a factor in disease is to be practically disregarded, much of the medication heretofore directed to its neu-

tralization, such as by the administration of lithium salts, must be dismissed as useless, and remedial measures must henceforth be directed to a prevention of the formation of alloxuric bases by supplying to the blood larger volumes of oxygen, and to their prompt elimination from the system when already formed.

Any light thrown upon the cause of disease is helpful in its cure. Indeed the usefulness of pathological research and discovery is largely gauged by its influence upon treatment. Hence the readers of Dr. Talbot's book will naturally turn with interest to those pages he has devoted to the treatment of the disorder which has been the subject of his investigation.

His initial statement is that "The disorder responds quickly to treatment at its outset. Later its complications and the extent of structure involved render treatment very inefficacious, and always insure loss of the tooth." To "remove the cause" whether local or constitutional is the keynote of his treatment, and he states that if the disease is constitutional, "the system should be flooded with large quantities of pure water. There is," he remarks, "nothing better to rid the system of poisons and impurities than flushing the blood with from three to five quarts of pure water a day. Cathartics should be employed. A Turkish bath should be used to open the pores of the skin, at which time a masseur should be instructed to stimulate the liver, kidneys, skin and peripheral nerves." This is sound therapy, and to it we would only add that the water if hot is far more eliminative and far less liable to disturb a feeble digestion than if taken cold; and also that active out-of-door exercise, by quickening respiration and stimulating the blood currents to swifter movement, is Nature's agency, and the best agency, for giving to the blood such large supplies of oxygen that faulty metabolism and the formation of alloxuric bases will be checked.

Locally, in the more hopeful cases, the mechanical treatment advised is massage and the careful removal of all deposits from around the teeth by means of suitable scalers, those of the author being recommended, used with a guarded drawing motion "in order that adjacent parts may not be injured, or inflamed parts infected with pus germs." It is directed that in this class of cases "The alveolar process must under no consideration be touched. * * * Harsh treatment on the inflamed bone or fibrous tissue either with instruments or drugs must not be employed. Heroic treatment, such as the indiscriminate application of sulphuric and

lactic acid and similar drugs in nearly or quite full strength, is not justified by the surgical principles of to-day. * * * If strong drugs be used they should not be permitted to remain in the tissue, lest necrosis of the alveolar process occur. They must be diluted or removed altogether after they have accomplished their purpose."

Iodin, with aconite as an occasional adjunct, with the use two or three times daily of a mouth-wash somewhat indefinitely described as "composed of a germicide, antiseptic, disinfectant and deodorant," is the medication chiefly recommended. Upon iodine the author places his chief reliance, and directs that the gums shall be "thoroughly saturated" with the tincture (U.S.P.) twice or thrice weekly.

In conjunction with this medication massage of the gums is directed, not with the finger or with the ordinary tooth-brush, but with one somewhat curved, and having the bristles arranged in tufts or bunches with spaces between "so that when the upward and downward movement is given, the bristles will go between the teeth and reach the gum festoons." It is further directed that the brush should be hard or medium, never soft; that the massage should be vigorous and done three times daily, and that "stimulant, astringent and germicidal mouth washes should be employed whenever the gums are massaged."

For these and other preparations suggested by the author it would perhaps have been well had he been a little more explicit as to formulas. He is doubtless quite correct in assuming that so long as medicative properties are secured, the exact agent by which they are supplied, or their exact proportions in a compound, are of minor consequence; but everybody likes a ready-made formula; it saves thinking, and lots of other trouble; and, besides, gives greater assurance that in trying a given plan of treatment the exact method and the exact agencies employed by its recommender are being followed.

Thus much space has been devoted to a review of the contents of this volume because it is a notable book, worthy of the most careful consideration, not only of dentists, but of the general practitioner. The painstaking thoroughness of its investigation of a most complex and difficult subject ensures it a permanent place as a classic in dental literature. It is a vantage ground gained and a fresh point of departure for still newer discoveries in dental science.

OBITUARY.

Dr. W. G. A. Bonwill.

Dr. Bonwill, whose death it is our painful duty to announce, died in St. Joseph's Hospital, Philadelphia, September 24th, 1899, after an illness of six or seven weeks' duration. Acute symptoms appeared during a trip to Niagara Falls. He was at first taken to the Clifton Springs Sanitarium, but ten days before his death he returned to Philadelphia, and entered the above-named institution.

The disease to which Dr. Bonwill succumbed was prostatic hypertrophy, complicated with acute cystitis and chronic nephritis. For the relief of the obstruction caused by the hypertrophic condition of the prostate gland, two electrical cauterizations were performed with temporary benefit; but absorption of pus took place, blood poisoning ensued, and death resulted from septicemia. The funeral services were held in Christ Church, Dover, Del., on Wednesday, September 27th.

William Gibson Arlington Bonwill was born at Camden, near Dover, Del., October 4th, 1833. From his seventh to his fourteenth year he attended school in the Middletown, Del., Academy, where his course of instruction included algebra, geometry, chemistry and elementary Latin and Greek.

After leaving school he was thrown upon his own resources, and, after the manner of self-reliant American youth, accepted any honest employment he could find, and was successively carpenter, cabinetmaker, store clerk, pedagogue, and finally student in dentistry in the laboratory of Dr. Samuel W. Neall, of Camden, N. J., where he had six months' tuition. This brief apprenticeship was supplemented by three months spent with Dr. Chapin A. Harris, of Baltimore, Md.

In October, 1854, Dr. Bonwill commenced practice in Dover, Del. His experience as a cabinetmaker stood him in good stead, for he was able to make his own operating chair and all the appurtenances of his office and laboratory. Thus, "with one suit of clothes, and three dollars in his pocket," he

entered upon a career in which he was destined to win fame and, if not wealth, at least a competency.

By his personal magnetism and ability, according to the standards of the day, he soon gained a considerable practice. In 1866 he graduated from the Pennsylvania College of Dental Surgery, and subsequently received the degree of M.D. from the Jefferson Medical College. In February, 1871, desiring more extensive opportunities, he removed to Philadelphia, where he speedily established himself in practice, and also devoted himself to the development of those inventions in dental mechanics upon which his reputation chiefly rests. His dental engine and electric mallet, both in crude form, were constructed in 1869; the surgical engine in 1872; the mechanical mallet in 1878. The "anatomical articulator," which he regarded as his greatest achievement and most valuable contribution to the science of dentistry, he first made in 1858, although it was not brought prominently before the profession until a much later period. The inventions above mentioned are but a few among the many which were the outgrowth of his untiring inventive skill.

Dr. Bonwill was either an active or honorary member of a large number of dental, medical and scientific societies, both in the United States and in foreign countries. He was not without honor in his own country, but his reputation was perhaps even greater abroad than at home. From several French and German societies he received decorations in recognition of his services to dentistry. By the Franklin Institute, of Philadelphia, he was awarded a gold medal for the originality and usefulness of his inventions.

Dr. Bonwill was married June 13th, 1861, to Miss Abigail E. Warren, of Dover, Del. His three children survive him; they are Dr. Edward W. Bonwill, who has followed his father's profession and is engaged in practice in Rangoon, India; Mrs. Edward S. Gellatly, of New York City, and Mrs. Caleb J. Milne, Jr., of Philadelphia.

Press work upon this issue of the BRIEF was stopped in

order that a reproduction of Dr. Bonwill's latest photograph and at least an outline of his career might appear. At this moment neither time nor space admit of extended comment upon the life and labors of one who, by his inventive talent, indefatigable industry and unquenchable enthusiasm, made himself a power in dentistry.

If he had egotism, harsh criticism was disarmed by its perfect frankness; it was not the vacuous vanity of an empty and useless life, but an egotism which, when coupled with talent and industry, becomes an impelling force to great achievement.

With him disappears a picturesque and forceful personality. His faults were of the head, and not the heart. Like others, he made mistakes; but, unlike some, did not hesitate to acknowledge them when convinced of error. Generous in his impulses, he was best beloved of those who best knew him. While these will mourn his loss, as will all that host of friends, to him unknown, to whom his fruitful life has been helpful, who shall say that it was not well with him when in the fullness of his powers, if not in the full ripeness of years, amid "honor, love, obedience, troops of friends," both work and life were ended.

ANNOUNCEMENTS.

THE INTERNATIONAL DENTAL CONGRESS OF THE
EXPOSITION OF 1900.

PRELIMINARY OUTLINE.

The National Associations of French Dentists have organized an International Congress to be held under the patronage of the French Government during the Universal Exposition of 1900. Similar Congresses were held during the Paris Exposition of 1889 and at the Columbian Exposition at Chicago in 1893. The principal dental societies of the entire world will be represented. The date has been fixed to the seven days from the 8th to the 14th of August, 1900. Immediately following the two important Congresses—Medical Ethics (practitioners) and the Medical Congress proper.

The work of the Dental Congress will be divided into eight sections:

1. Anatomy, Physiology and Histology.
2. Special Pathology and Bacteriology.
3. Operative Dentistry and Special Therapeutics.
4. General and Local Anæsthesia.
5. Prothesis, Dental Orthopædia and Facial Restorations.
6. Teaching and History of the Dental Art.
7. Legislation, Jurisprudence and Professional Ethics.
8. Hygiene, Public Dental Service.

Two sorts of communications will form the matter of discussion of the Congress; first, those received in advance by the committee, for the preparation of reports in each section; second, subjects chosen by the authors (the latter papers may be written in French, English, German, Russian, Italian, or Spanish—only the conclusions must be in French). There will also be practical demonstrations by operations either of operative dentistry or of dental prosthesis, and the exposition of new instruments.

The conditions of membership for the Congress are the legal right to practice dentistry, honorable exercise of the profession, and the recommendation of the National Committee. The Organizing Committee will also consider the applications of persons not exercising the profession. Members who desire to present communications to the Congress should give notice to the Secretary-General at least three months before the opening

of the Congress. With this notice they should send the text of the conclusions which sum up the paper; and these conclusions will be translated into French by the committee.

The subscription for membership is 25 francs, giving a right to all the privileges of the Congress. Subscriptions should be sent to the Treasurer, M. Viau, 47 Boulevard Baussmann, Paris. Communications are to be addressed to the Secretary-General, M. le Docteur Sauvez, 17 Rue de Saint-Petersbourg, Paris.

INTERNATIONAL DENTAL CONGRESS.

PARIS, FRANCE, AUGUST 8TH TO 14TH, 1900.

The committee appointed by the National Dental Association at the Omaha meeting, August 30th, 1898, was, by order of the chairman, Dr. A. W. Harlan, convened at the Cataract House, Niagara Falls, August 1st, 1899. No quorum being present, was adjourned to the 3d inst., at four P. M.

There were then present A. W. Harlan, of Chicago; H. A. Smith, Cincinnati; Thomas Fillebrown, Boston; T. E. Weeks, Minneapolis; J. D. Patterson, Kansas City; H. W. Morgan, Nashville; T. W. Brophy, Chicago; W. C. Barrett, Buffalo; W. W. Walker, New York City; W. E. Griswold, Denver, Col.; B. Holly Smith, Baltimore; J. Taft, Cincinnati, O.

The meeting was called to order by the chairman, who gave a short address, stating the object, organization, etc., of the Congress, and the work necessary for the committee to accomplish in this country.

On motion of Dr. Weeks, W. E. Griswold was elected secretary.

On motion of Dr. Fillebrown, Dr. Wm. Jarvis, of Brooklyn, N. Y., was elected an additional member of the committee.

On motion of Dr. Smith, the chairman and secretary were instructed to confer with the National Association in regard to arranging an earlier meeting next year to accommodate those going abroad.

On motion of Dr. Weeks, H. S. Sutphen, of Newark, N. J., was made a member of this committee.

On motion of Dr. Barrett, a place on this committee was reserved for the President of the National Association in the year 1900, and the chairman was authorized to insert his name.

On motion of Dr. Brophy, George H. Chance, of Portland, Oregon, was made a member of this committee.

On motion of Dr. Barrett, a resolution requesting any member of this committee, finding himself unable to go abroad to attend this Congress shall at once resign, and that the Executive Committee be empowered to fill the vacancy was passed.

On motion of Dr. Smith, the chairman was requested to appoint a transportation committee, composed of Dr. Jarvie, Dr. Walker, Dr. Harlan and Dr. Griswold.

On motion, a committee consisting of Dr. Brophy, Dr. Weeks, Dr. Morgan, was appointed to take charge of the exhibit of American Educational Methods.

On motion, an Executive Committee of five was appointed, consisting of Dr. A. W. Harlan (chairman), Dr. Barrett, Dr. Brophy, Dr. E. C. Kirk and Dr. H. A. Smith.

On motion, the Executive Committee was empowered to fill vacancies in this committee.

On motion, adjourned to meet at call of chairman.

W. E. Griswold, Sec., 423 Mack Block, Denver, Col.

Questions and Answers.*

Question 49. Has phosphoric acid ever been used to any extent for obtunding sensitive dentin? *J. J. H.*

Some years ago Dr. C. N. Peirce suggested glacial phosphoric acid prepared for this purpose, by dissolving in two parts of water, by weight, afterward bringing to the consistency of glycerin by rapid heating and evaporation. The rapid evaporation prevents crystallization on cooling. The sensitive tissue, after thorough dehydration, is touched with the preparation, allowing it to remain in contact until the desired effect is produced. It was found to be of especial value when applied to the cervical margin when both the dentin and cementum were inflamed. The preparation was also found efficacious in cases of severe pain from freshly exposed pulps, or in cases of extreme pain following application of arsenic. *Editor.*

*Under this head the editor solicits correspondents both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

Question 50. Does degeneracy of tooth form take place without any marked degeneracy of tooth tissue?

In reply to question in regard to degeneracy of tooth tissue, etc., I would say both yes and no; sometimes there is little apparent degeneration of structure, and again there is defective organization of the dentinal tubuli by numerous interglobular spaces, also an irregular arrangement of the enamel prisms.

A. H. Thompson, Topeka, Kansas.

In reply to Question No. 50, the Editor would call attention to the article published in the DENTAL BRIEF for April, 1899, page 198.

Question 51. I have heard a great deal recently about the deleterious effect of gold crowns when placed on vital roots, and at present have in my own charge a case which I have every reason to believe is the direct result of this practice. The patient, a young lady of 25, in apparent health, presented herself in February of this year with a pronounced swelling over the bicuspid region. An examination revealed the fact that the swelling was confined to the buccal tissues rather than about the tissues immediately in contact with the alveoli. Bicuspids were both capped with gold, but the teeth gave no indication of being the cause of the trouble. Notwithstanding this, I advised the extraction of these teeth, after which an examination showed the alveolus, including the floor of the antrum, to be in an advanced necrotic condition, and it was only by the greatest care and most thorough treatment that the parts were restored to their normal state. I make this statement with the hope that it may bring about some discussion, and ask if in the opinion of others the gold crowns were responsible for the trouble?

W. J. R., Cleveland, Ohio.

Question 52. I am in the habit of making frequent and free use of nitrate of silver to exposed or congested pulps; will this agent have a harmful effect upon the enamel or dentin if placed in contact with it for some time? I would also like to know what action, if any, chlorate of potassium has upon the tooth tissues?

Question 53. I inserted a root filling of chloro-percha in an upper cuspid tooth about a year ago. Recently the patient returned to me, and I found great recession of the gum from the neck of the tooth, and upon careful examination found absorption had taken place to quite an extent. The tooth has never given any trouble, but the patient desired it extracted on account of its unsightly appearance. What was the condition, and is there any remedy for the same? *C. N. Hoagland, Elgin, Ill.*

Question 54. To what extent are teeth filled with porcelain inlays affected by thermal changes?

Question 55. What is the most probable cause of failure of the eruption of the superior lateral incisor?

Question 56. What treatment would you suggest in the following case: The patient, a boy nine years of age, was taken sick shortly after the eruption of all of his deciduous teeth, and for some time was given phosphates and other remedies of a similar character which appeared to destroy the temporary set. At the present time the permanent first molars, central and lateral incisors have erupted, the centrals being somewhat separated. From the cervical margin to the center of the labial surface the enamel appears perfect, but from the latter point to the cutting edge it is very defective and full of small brown depressions which have every indication of extending to the dentin.

John W. VanDyke, United Bank Building, Sioux City, Iowa.

Question 57. Is there any possibility of an artificial denture being so constructed that it may interfere with the free flow of saliva?

In the July, 1899, issue of the DENTAL BRIEF, my attention was arrested by Question No. 46, "What is the cause of thick or stringy saliva, and is there any remedy?"

It is impossible to name the cause of this condition. It is due to a dyscrasia or morbid state in the system, and the mucous and salivary glands of the mouth, performing their normal function of elimination, throw out this viscid and ropy excretion with the mucus and saliva. It is never due to carelessness, and an attack upon the excretion in the mouth gives no relief.

The treatment of it is extremely simple, and consists of administering internally homœopathic triturations of bichromate of potash (*Kali bichromicum*) the 200th trituration. This is a specific not only relieving the condition, but curing the cause of the condition in the system. *Kali bichromicum*, the 200th, in granules, a few granules given night and morning will cure the condition.

George Howe Winkler, M.D., D.D.S.



Practical Points.*

Permanganate of Potassium Stains.—For removing the stains of permanganate of potassium from the hands or clothing, peroxid of hydrogen acts like magic. *Medical World.*

Removal of Tooth from Hemophile without Hemorrhage.—Dr. Bennett put a light rubber band about the tooth; in a few days the tooth was removed without the loss of a drop of blood, although it was considerably painful. *L'Odontologie.*

Hypodermic Anaesthesia.—As an anæsthetic in tooth extraction the use of peroxid of hydrogen hypodermically is very much better than cocain. You cannot get a bad effect, and the anæsthesia is very pleasing.

Frank N. Brown, Dental Review.

To Clean Rusty Instruments.—Fill a suitable vessel with a saturated solution of stannous chlorid (chlorid of tin) in distilled water. Immerse the rusty instruments and let remain in the solution over night. Rub dry with chamois after rinsing in running water, and they will be of a bright silvery whiteness.

Dental Digest.

Volasem, the Antidote to Cocain.—I employ a saturated solution of cocain, as with its antidote, volasem, I do not feel any hesitancy in using cocain as freely as I would water. I formerly used general anæsthetics in a large percentage of cases, but now rarely find this necessary. This has been brought about entirely by the use of volasem, the antidote to cocain.

G. Lenox Curtis, Dental Cosmos.

Why some Amalgam Fillings are Failures.—Upon the assumption that amalgam is a cheap material, all of the steps in the operation are made too cheap; a fundamental error, because cavity-preparation, contouring, and subsequent finishing are all fixed factors in tooth-filling, regardless of material. Imperfect preparation, hasty and sloppy packing, and failure to dress to perfect margins are simply malpractice.

H. H. Burchard, The Stomatologist.

After-Pains of Extraction.—The pain after extraction, or more correctly, neuritis of the alveolus, will most generally be found in an inflammation of the continuation of the alveolus. The rending of the periosteal nerves, the pulling and expansion of the osseous walls, a scarcely apparent fracture, may all contribute to torture the patient for days. If in these cases every part of the socket is thoroughly wiped with concentrated carbolic acid, pain will cease at once, with no subsequent ill effects.

Arthur Schneur, Prager Med. Woch.

* Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

A Substitute for the Diamond Disk.—A small disk of thin copper, used with water or oil and *fine emery*,* will cut as perfectly as a diamond disk, and even more quickly.

Dr. Roberts, International Dental Journal.

Test for Quality of Plaster of Paris.—The quality of plaster may be tested by simply squeezing it in the hand. If it coheres slightly and remains in position after the hand has been gently opened, it is good; if it falls to pieces immediately it has been injured.

British Journal of Dental Science.

Substitute for Counter Die.—With soft pine cut into little blocks and used endwise of the wood, laying the gold over the face of the die, one blow with a good heavy hammer will make what will serve as a counter die, and there is no fusible metal to adhere to the gold. The swaging process is shortened one-half by this process.

G. W. Melotte, Dominion Den. Jour.

Conservative Pulp Treatment.—Iodoformagen cement of a rather thin creamy consistency, carried to place in a depressed cavity-cap disk, covering the exposed pulp snugly but without pressure, will give astonishing results. Mix on a heavy glass plate raised to the temperature of the blood, and warm the spatula. This in order to overcome the quick-setting tendency of the cement.

Otto Béchel, Items of Interest.

"Volasem," the Antidote to Cocain.—Volasem prevents the depressing effect frequently following the use of cocain. It neutralizes the general effect, but does not alter the local action; it sustains the cardiac and respiratory functions. The dose is from one to three drops in a teaspoonful of water, swallowed immediately before the injection or application of cocain. If necessary a second dose may be given. It is furnished by the S. S. White Dental Mfg. Co.

The Dentist.

Formalin in Arrest of Caries.—When the teeth are of a chalky character and decay prevalent, apply rubber-dam ligating each tooth. With a pledget of cotton saturated with 25 per cent. pyrozone, cleanse all chalky spots, thoroughly drying in with hot air. Then apply 20 per cent. formalin to the surface of the affected teeth, being careful not to allow it to come in contact with the soft tissues of the mouth. With continuous blasts from hot-air syringe dry it into the teeth thoroughly, continuing for from twenty to thirty minutes. Finally apply equal parts solol and fir-balsam, drying this in thoroughly to seal the tubuli. Experience has proved that this will harden the teeth and prevent decay.

A. A. Fowler, Pa. Den. Med. Gazette.

*The italicised words were by mistake omitted from this "Practical Point" in the September BRIEF. Dr. Roberts calls attention to the fact that without emery the copper disk has little or no abrasive power.—J. M. W.

Sensitive Dentin.—A special remedy, which I have found to be of practical value in most cases, is a combination of chloroform, ether and menthol, applied with a hot-air syringe. This has seldom failed, even in the most extreme cases, to make the operation at least bearable.

R. G. MacLaughlin (Toronto), Dominion Den. Jour.

The "Arthur Method."—When caries appears on the proximal surface of the six anterior teeth soon after their eruption, I have found the practice of cutting away the proximo-lingual surface very beneficial. I do not call to mind a single case where decay has recurred after this treatment, even in the most extreme cases.

J. N. Crouse, Nat. Den. Ass'n, Niagara Falls, 1899.

Pulp-Canal Filling. Creosoted Charcoal Points.—In case of alveolar abscess, even with periostitis, clean and dry out the canals, apply oil of cassia and insert a creosoted charcoal point. Dismiss the patient for from three days to a week, when, as a rule, the cavity may safely receive permanent filling—a gold restoration, if called for. No failures reported so far.

E. R. Tait, Pacif. Med. Den. Gazette.

Mat Gold.—Use mat gold judiciously, study your teeth and its manipulation, and you will never regret adopting it. No retaining pits are needed; for conformity and adaptation to cavities nothing can equal it. At the cervical margin it is equal to tin as a tooth-saver. When properly treated it is soft and cohesive. For good color electro-mat takes precedence, but in other respects all the mat golds appear alike.

E. N. Stump, Dental Digest.

Quick Flasking.—Mix sufficient plaster to fill the flask. Fill one-half and put in the plaster cast or plate, shaping the surrounding soft plaster so as to have no undercuts. Cover the filled half with tissue or bibulous paper, brush it over with soap solution, put on the ring of the other half and fill up with the remaining plaster while still soft, and put on the top of the flask. Will open as readily as if two mixes of plaster had been made.

B. H. Teague, American D. Weekly.

Root-Canal Filling; Weld's Chemico-Metallic Method.—One of the metallic broaches, composed principally of zinc (97 per cent.), is to be dipped into the modified nitro-hydrochloric acid, probably about one-fifth of a drop adhering; sufficient to destroy all the germs and coagulate the dead or semi-dead matter in the canal. The broach thus charged is immediately inserted in the canal, a slight nick having been previously made at a point corresponding with the depth of the canal. A slight bend or twist breaks off the point, leaving it in the canal, obliterating the space, while the concurrent chemical action acts as a powerful germicide.

L. N. Seymour, Indiana Den. Journal.

Varnishing Cavities.—After varnishing a cavity, and before introducing the filling, remove excess of varnish by using small pieces of rubber-dam. It takes up the varnish and leaves no lint behind.

J. L., Australian Journal of Dentistry.

Dr. Clyde Payne's Local Obtundent.—Make a saturate solution of carbonate of potassium and glycerin, and also a saturate solution of cocain and carbolic acid. Mix the two together on a warm glass slab. After drying the cavity thoroughly with alcohol and hot air, apply a drop of the obtundent and continue the blast of hot air for five minutes. Gives better results than cataphoresis.

Dominion Dental Journal.

Quinine Sulphate for Sensitive Dentin.—A very nervous lady had tried five different dentists in Paris to have her teeth filled, but the dentin was so highly sensitive that she could not submit to the operation. Schwarz gave her three powders of quinin, eight grains each, to be taken at intervals of forty-eight hours. The sensitiveness of the dentin was entirely lost, and he filled three cavities at the first sitting.

L'Odontologie.

To Insure a Smooth Hard Cement Filling in Proximal Surfaces.—When the labial and lingual walls are to be restored, pass a thin piece of slightly oiled mica or celluloid between the teeth. After introducing the cement press this matrix firmly over the cavity and hold for a few minutes. The pressure makes a more solid filling, the oil prevents the cement from sticking to the matrix, and the matrix gives the proper space between the teeth.

British Journal of Dental Science.

Electrolysis in Sterilizing Root-Canals, Abscess Cavities, etc.—A soluble zinc electrode, mounted upon an insulated handle, is to be inserted into the cavity, the action of the current generating zinc chlorid. If the zinc electrode is coated with mercury the chlorids of mercury and zinc will both be deposited. If a fine gold wire coated with mercury is used as an electrode, only the mercury will be acted upon by the current.

J. M. Fogg, Dental Cosmos.

Eucaïn in Painless Pulp Extirpation.—Moisten with alcohol and touch to finely powdered eucaïn hydrochlorate a bit of spunk the size to nicely cover the floor of the cavity. Place in the cavity so that the eucaïn is in contact with the exposed pulp. Fill the rest of the cavity with unvulcanized rubber, and apply light pressure with a ball burnisher as large as can be made to enter the cavity. Gradually, as it can be borne without pain, increase the pressure until considerable force is exerted. Remove rubber and spunk at the end of from three to four minutes, and usually the broach may then be inserted and the pulp removed without pain. If arsenic has been previously used the anæsthetic effect will not be so pronounced.

Items of Interest.

Miscellany.

Miodowsky used a 5 per cent. orthoform ointment on a leg ulcer in a woman of sixty-eight, and found that moist gangrene developed. Discontinuance of the orthoform, rest in bed, or borosalicylic acid paste brought about a cure.

Münchener Med. Woch.

Dangers of Caffein.—Zenetz reports three cases of sudden death from the ingestion of caffein, with the heart found so contracted at the autopsy that it almost repelled the scalpel. In one case 18 grains of the citrate had been taken in two days, and in another 45 grains in the course of a few days. The slow elimination explains its accumulation and dangers. It is found in the urine ten to fifteen days after it has been discontinued.

Semain Méd.

Xerostomia (Dry Mouth).—An interesting case of treatment is reported in the *Medical News*. A woman aged fifty-six, and though edentulous for fifteen years, was robust. She suffered from extreme dryness of the mouth for four months, which caused her to constantly chew in order to relieve it. Several remedies were tried without effect. She was then advised to keep smooth pebbles in her mouth, and experienced marked relief. A set of teeth were next ordered; since wearing them she has not had the slightest symptoms of the trouble which had been harassing her constantly for twenty months.

Free Oxygen and Tubercle Bacilli.—Geo. W. Weld, M.D., D.D.S., of New York, has made an interesting series of experiments on the inhibitory influence of free oxygen in the growth and multiplication of tubercle bacilli. (See *Therapeutic Gazette*, Feb. 15th, 1899.) Test tubes containing nutrient media (agar-agar glycerin) were inoculated with virulent tubercle bacilli and a slow current of warm oxygen gas passed over them for a period of twenty days, with the result that the growth of the culture was completely retarded. To ascertain whether the cultures had lost their pathogenic properties, three rabbits were inoculated; none of them showed any symptoms of tuberculosis. Dr. Weld's deductions from this and similar experiments are that while tubercle bacilli are aerobic and an excess of oxygen inhibits their growth and multiplication, the fact has no practical value in the treatment and cure of pulmonary tuberculosis, the tubercle being so securely incased in lung tissue as to be apparently protected from the influence of any germicidal agent whatever. He has obtained the best results from the syrup of iron chlorid (his own modification of the official tincture of iron chlorid), which he finds often to act as a permanent tonic by increasing the desire for food and the ability to dispose of it.

Sudden Death under Nitrous Oxid.—In Leipzig recently a young American woman had a tooth removed under gas (unconsciousness lasting three-quarters of a minute). After being awakened apparently all right, she sank back dead. The only explanation given is heart failure. On her arm several punctures as of hypodermic injections of morphia were discovered.

Phila. Med. Jour.

Asterol.—Asterol is an antiseptic for wounds, stated to be mercury phenyl-sulphonate. It occurs as a brown powder, which is soluble in hot water, and keeps well in concentrated solution, which is precipitated neither by sulphuretted hydrogen, potassium ferricyanide, potassium iodide, nor ammonia. Solutions of asterol do not precipitate albumin. Steinmann has been successful in the treatment of wounds with 2 to 4 per cent. solutions, and recommends them as a substitute for sublimate.

Berl. Klin. Woch.

Melting Point of Fats.—A most ingenious method has just been devised for determining the different melting points of fats, a test much used in detecting the presence of suets in butter. Two platinum wires coated with the fat to be tested are connected with the two poles of a battery. They are then plunged into a cup of mercury, the temperature of which is gradually raised by a Bunsen burner. As soon as the melting point of the fat is reached, the coating is of course dissolved from the wires, and a circuit made between them through the mercury, the passage of the current ringing an electric bell. All that is necessary is to listen for the bell, and when it rings read off the thermometer which stands in the mercury.

Med. News.

Teeth Extraction in Neuralgia.—The extraction of teeth for trifacial neuralgia is a sin for which both dentist and physician are responsible, and in about the same degree—the physician for sending the patient to the dentist, and the dentist for extracting teeth in such conditions. Members of both professions should have sufficient common sense, if not professional education, to recognize the fact that the extraction of sound teeth not only gives no relief, but that it is a most useless mutilation, which the patient is sure to regret deeply because of the injury to personal appearance and the interference with digestion, and for which their professional adviser is certain to be severely censured. This mistake might be more common, but it is common enough, as is evidenced by the statement of a prominent surgeon that he has been consulted during the past two years by no less than six patients, who had had the teeth in both jaws uselessly extracted for tic douloureux. The medical treatment of this condition is not encouraging in its results, it is true; nevertheless, it should be given a thorough trial, and if persevered in will sometimes give permanent results. In any case, extraction of the teeth can have no possible permanent value.

Phila. Med. Jour.

Mountain Toothache.—A peculiar affection of the teeth, mountain toothache, has recently been observed by an Italian dentist. The sufferers are engineers and laborers, new hands, working at an elevation of 2,600 yards or over, and consists of intense pain in several adjoining teeth. This lasts for from four to five days, until the new men become somewhat accustomed to the altitude. The teeth in every case were apparently healthy.

The Utility of Gargling.—A German physician has made some experiments to determine the value of gargling. The velum, a portion of the tongue and the tonsils were dusted with wheat flour, and a gargle in which iodine was mixed with glycerin was used by the patient. It was found, after gargling, that the velum and the tongue exhibited the blue color of the reaction on the starch, but the flour on the tonsils was neither colored nor washed away.

Med. News.

Salicylic Acid in Milk.—Dr. Henry Leffman, of Philadelphia, a prominent chemist of that city, recently stated that many diseases of infants, which occur during the summer months, may be induced by the use of milk and artificial foods which contain salicylic acid. He stated that the drug had an enormous and increasing sale, and that several forms are being put upon the market. Speaking of the artificial form used by brewers, in the preparation of bottled beer, he thought it poisonous, and that its sale should be prohibited by law. In Trenton, N. J., recently salicylic acid in milk caused the death of several children.

Medical Times.

Winslow, in *Boston Med. and Surg. Jour.*, reports that during an obstetric operation in which chloroform was administered to the patient, all those in the room felt a choking and stinging sensation in the throat and chest and had incessant cough and dyspnea. This became so severe that the operation had to be stopped temporarily, and the windows opened; ether was substituted for the chloroform, and the operation was completed without further trouble. The patient suffered no harm. Upon examination of the literature Winslow finds that a number of similar cases are reported, and that these cases usually occurred when chloroform was, as in this instance, administered while artificial light was in use. In this case there were three gas-jets burning while the anæsthetic was being administered. There is experimental evidence to show that the administration of chloroform while artificial lights are burning is likely to produce broncho-pneumonia and edema of the lungs with a marked passive congestion of the liver and kidneys. This variety of poisoning also occurs with some frequency in druggists or chemists who use chloroform in the presence of gas flames. This danger, when added to the other dangers in the use of chloroform, makes it inadvisable to use this anæsthetic in obstetric work, in which night work is more probable than in other conditions.

The Penalty for Food Adulteration in France.—Alphonse Karr's once famous epigram, "I poison the grocer—guillotine; the grocer poisons me—ten francs," has been outgrown, according to *Food and Sanitation*, for, besides paying his ten francs, the grocer now has to post in two places in his shop large placards announcing the fact that he has been convicted of food adulteration. These interesting souvenirs are kept in place for many months.

Soap Known to the Ancients.—From the writings of Pliny the elder, it is evident that soap was known to the Romans as early as the first century. According to him the ordinary article was prepared with ashes and tallow, while a better quality of soap was made with goats' fat and beechwood ashes. Neither of these products was hard, but of the consistency of the common soft soap, and, curiously enough, were used frequently by the Gauls in bleaching their hair and by the Romans as a perfume. Pliny says that the article most in use for washing was saponin, the mucilaginous product of a Syrian plant.

Pacific Medical Journal.

Sodium Chlorate in Acid Dyspepsia.—In doses of two to four grams, taken twice daily in tepid water, as long as possible after a meal, M. Soupault finds that sodium chlorate is of great value in the treatment of various gastric complaints, and in particular in dyspepsia with hyperacidity. Brissaud has already shown that the salt exercises a good effect in gastric cancer, which the author confirms; it is also beneficial in an ulcerated condition of the stomach. It is, however, in dyspepsia that the most markedly good effects are obtained. So long as the dose does not exceed 8 grams in 24 hours, no ill effects need be feared from prolonged treatment with the drug. By its aid the author claims to have effected cures which were not amenable to treatment with alkalis, nor even with washing out the stomach.

Les Nouv. Rem.

Formalin in Whooping-Cough.—Olliphant (*New York Med. Jour.*, March 4th, 1899), after a year's trial of formalin in the treatment of whooping-cough, is convinced that it is as much of a specific for this disease as mercury is for syphilis, or quinin for malaria. The results seem to prove that whooping-cough is a disease having a purely local lesion, the infection beginning in the fauces, and by the multiplication of the germs infecting later the air-passages, and then the general system. This idea is borne out by the fact that carbolic acid, menthol, and other antiseptics, have been used in the throat with benefit, but the results obtained by them have not been so uniformly good as those which have followed the application of a solution of formalin. Out of twenty cases so treated not one failed to be cured in less than eight days, while some were cured in three days. The application of the formalin solution to the fauces is followed by free emesis, so that the solution used in young or debilitated children should be weak.

The Smell of the Earth.—Nuttall has determined that the smell of freshly turned earth is due to the growth of a bacterium, the *cladotrix oderifera*, which multiplies in decomposing vegetable matter, and more rapidly in the presence of heat and moisture. Hence the odor is especially marked after a shower, or when moist earth is disturbed. In dry soil the development of the bacterium is arrested, but it is immediately resumed with vigor as soon as moisture is restored. *Med. News.*

Bread-Winning Begun at Thirty.—Professor Isaac Franklin Russell, of the New York University Law School, at the annual dinner of the Society of Medical Jurisprudence, deprecated the tendency of modern professional education to keep a man from getting to work until he is nearly or quite thirty years of age. This tendency is most marked in medicine. "A bright boy, ambitious to become a physician, goes through the public school in preparation for college, where he spends four years working for his bachelor's degree and a year or two more in post-graduate study, then goes to a medical college and studies three or four years for his doctor's diploma, and, winning distinction, is awarded a staff appointment at a hospital, where he spends two years, and then finishes his education by study abroad. He will be thirty years old and without experience in bread-winning."

Med. News.

Science Utilizes all the Ox.—In an article on the "Wonders of the World's Waste," William George Jordan, in the *October Ladies' Home Journal*, details how science at the present day utilizes the ox. "Not many years ago," he says, "when an ox was slaughtered forty per cent. of the animal was wasted; at the present time nothing is lost but its dying breath. As but one-third of the weight of the animal consists of products that can be eaten, the question of utilizing the waste is a serious one. The blood is used in refining sugar and in sizing paper, or manufactured into door-knobs and buttons. The hide goes to the tanner; horns and hoofs are transformed into combs and buttons; thigh-bones, worth \$80.00 per ton, are cut into handles for clothes brushes; fore-leg bones sell for \$30.00 per ton for collar buttons, parasol handles and jewelry; the water in which bones are boiled is reduced to glue; the dust from sawing the bones is food for cattle and poultry; the smallest bones are made into boneblack. Each foot yields a quarter of a pint of neatsfoot oil; the tail goes to the 'soup,' while the brush of hair at the end of the tail is sold to the mattress maker. The choice parts of the fat make the basis for butterin; the intestines are used for sausage casings or bought by gold beaters; the undigested food in the stomach, which formerly cost the packers of Chicago \$30,000 a year to remove and destroy, is now made into paper. These are but a few of the products of abattoirs. All scraps unfit for any other use find welcome in the glue-pot, or they do missionary work for farmers by acting as fertilizers."

Cancer of Vegetables.—Dr. Bra and Dr. Chevalier, in their researches on cancer have reached independently the same conclusions. Dr. Bra has isolated what appears to be the parasite of cancer, a mushroom. Examining fragments of diseased wood, particularly the wood of apple trees, he found characteristic conidia of *nectria ditissima*. These he “cultivated” just like ordinary microbes. They begat spores, and then cells, in every respect like the cells of the human cancer mushrooms. Dr. Bra, wishing to make a crucial test, got leave from the Government to inoculate trees of the forest of Meudon, near Paris, with cultures of human cancer. He chose trees far removed from any diseased ones. Six months later spots of dry rot appeared on the trees inoculated—beeches, maples and sycamores. An elm died from the cancer so communicated. Other tests have given striking results. Dr. Bra does not conclude that animal and vegetable cancers are caused by one specific fungus, but he thinks a number of diseases of plants are extremely like diseases of animals.
London News.

Coated Tongue.—Weaver, in *New York Med. Jour.*, thinks that from a clinical standpoint the coated tongue should be looked upon as a comparative index of the purity or impurity of the blood. Besides the normal constituents of the salivary secretion, which vary within certain limits, there are undoubtedly some abnormal elements which are carried out through the glands from the blood when it is surcharged with impurities. This abnormal saliva, being thrown into the mouth, is subjected to the numerous microorganisms of fermentation. More or less of the solid matters are thrown down and constitute a salivary precipitate, which lodges on the teeth and on the dorsum of the tongue, as well as on the gums and lips. It is easily removed from the teeth by the use of the brush. Ordinarily it is allowed to remain upon the tongue until it becomes offensive, consequently communicating an odor to the breath. In Bright’s disease, diabetes, and almost any disease in which the nutritive and excretory functions are disordered, this coating becomes very foul, and the fouler the tongue the more serious the condition of the patient, the more sluggish the excretory organs, and the more heavily loaded is his blood with toxins. It is probable that the highly offensive odor has a depressing effect upon the nervous system, if not upon the nutrition, acting as a gaseous poison through the inspired air. He advises the use of a tongue scraper as a part of the morning toilet, after which a disinfectant should be used. This procedure will remove the foulest odor from the breath. He recommends the same procedure to be applied to surgeons for the sake of asepsis, and its thorough application in cases of operation in or about the mouth. Each fever patient should have his tongue systematically cleaned.—*Phila. Med. Jour.*

Amyloform is a chemic combination of formaldehyde and starch. It is used in the form of a dusting powder. Heddæus has employed it in a number of cases and finds that it is a valuable antiseptic, especially in extensive superficial suppurative processes. Iodoformogen is an odorless compound of iodoform and albumin, containing 10 per cent. of the former. It is antiseptic, checks secretion, stimulates granulation, and has a specific action on tuberculous processes. Although probably not capable of replacing iodoform, it comes nearer to it in action than other preparations and does not have its disadvantages.

Münchener Med. Woch.

Cause of Lamp Explosions.—A curious result has been arrived at in the investigation of the cause of lamp explosions in London, and that is, it is not the worst or lowest-flash oils which are most dangerous, but those of medium grade. For instance, in 15 explosions 11 were caused by medium oils, with a flash-point of from 80 to 88 degrees, and only 4 by oils of from 73 to 80 degrees. At the same time, glass lamps are found more dangerous than metal ones, not because they are more liable to break, but because they are cooler; the secret of these apparent paradoxes being that oil vapor is explosive only when mixed with air in the precise proportion of 41 to 50, which is quickly exceeded in the hot metal lamp bowls, and with the volatile low-flash oils.

Tartaric Acid occupies one of the most important places among chemical products. It is found in abundance in the form of acid tartrate of potassium and neutral tartrate of lime, in the raw tartar from casks, in wine lees, and in grape skins, which constitute the only raw materials used for its extraction. At the present time the extraction of tartaric acid is almost entirely carried on in England, the United States and Germany, the wine-producing countries possessing only a few factories of little importance, limited to the treatment of raw material produced on the spot, though more often—in fact nearly always—the stocks are allowed to accumulate, and are then shipped to some foreign factory.

Meat Extracts of Vile Origin.—The *Lancet* of April 22d comments upon revelations which have recently been made concerning the preparation of meat extracts from filthy material, such as putrid livers and offal. Modern chemistry has unwittingly placed at the disposal of those who prepare meat extracts in this manner deodorizers and subtle flavoring materials which disguise the substances from which these extracts are made. The *Lancet* considers that a system of control should be established by the State, so that extracts might from time to time be subjected to chemical and bacteriological examination. Possibly many cases of gastro-enteric disturbances, the etiology of which has not been discoverable, may have been due to the ptomaines generated in such preparations.



HORACE WELLS
THE DISCOVERER OF ANÆSTHESIA
PRESENTED BY THE DENTISTS OF AMERICA. O.

THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, NOVEMBER, 1899.

No. 11

ORIGINAL COMMUNICATIONS.

EMPYEMA OF THE MAXILLARY SINUS.*

Dr. Robert Milligan.

In giving this paper I wish to dwell particularly upon the chronic empyema of the maxillary sinus. The acute inflammations to which this cavity is liable, are in the majority of cases not strictly cases of empyema, but are more in the nature of a mucocoele. The mucosa of the antrum becomes infected through the continuity of tissue or from a tooth, or mechanically due to closure of the natural opening, generally from an acute rhinitis, thus damming up the mucus in the cavity and causing an inflammation.

The duration of this acute inflammation is usually short, from a week to three, four or six. If, however, the inflammation continues, or the mucosa becomes infected in any way, we have a true empyema resulting, and it is to this condition that I wish especially to call your attention.

Etiology.—The antrum of Highmore is especially liable to infection from one or two sources—either from diseased conditions of the teeth or from the nasal cavity. The question whether the first mentioned, or the latter, is the most frequent source of infection has been long and hotly debated. Such authorities as Moritz Schmidt, Fränkel, Kuchenbecker and others claim the teeth to be primarily the cause of the antrum empyemas. Equally celebrated authorities, such as Zukerkandl, Krause, Hartman, Ziem and Bosworth claim that empyema of the antrum is more often due to an extension of some diseased process from the nose. Of four cases that are under treatment at the present, but one can be traced to tooth complication.

*Read before the Odontological Society, of Western Pennsylvania, at Butler, Pa., June 13th, 1899.

Two cases were caused by an infected frontal sinus. The pus flowing from the frontal sinus ran down the hiatus semilunaris through the normal opening of the antrum, causing an infection of the cavity. One case was due to syphilis—an extension of the syphilitic process into the antrum from the middle nasal fossæ. The entire pars membranosa being ulcerated away on both sides of processus uncinatus of ethmoid, leaving two large openings into the antrum. On the left side a polyp can be very readily seen growing within the cavity with the pus flowing around its edges. But one case was due to the extension of the infection from a tooth, and from the history of the case the second bicuspid was probably the cause. It is difficult to reconcile such diversity of opinion, as expressed by such authorities as Fränkel and Schmidt on the one hand and Zukerkandl and Bosworth on the other.

Zukerkandl believes that the majority of cases of empyema of the antrum are caused by the extension of the inflammation through the natural opening, or simply by the extension of the inflammation by the continuity of tissue through the membranous wall.

Bosworth, on the other hand, although he thinks that the majority of empyemas are due to nasal trouble, believes that, as in the case of polyps or of hypertrophic rhinitis, the natural opening becomes closed or reduced in size, thus causing first a catarrhal inflammation of the mucosa lining the sinus, followed by a purulent inflammation. As an otitis media may be the sequela of the use of the galvanic cautery in the nose, so also an empyema may follow its use as reported by Kuchenbecker.

I know of one case in which an empyema followed a blow in the face. Another interesting case followed an extraction of the pulp of the first molar. In this case the apical foramen of the palatal root was well developed, and came in direct contact with the floor of the sinus. In extracting the pulp the cavity of the antrum was opened. Due to lack of care in asepsis, or to irritation caused by the root filling, an empyema developed.

In addition to the causes already mentioned, empyemas following the various acute infectious diseases must not be overlooked, such as small-pox, measles, scarlet fever, diphtheria and influenza—influenza being the chief among the group. Besides the above-mentioned diseases, cases of empyema have been reported following typhoid fever, tuberculosis and syphilis, also

after Malgagne's operation on the facial nerves. It has been asserted by Hajek that all severe cases of facial neuralgia following influenza are due to an empyema of one of the accessory sinuses, and that the antrum is especially liable to infection. In a recent paper by Dr. R. M. Pearce on the bacteriology, gross and minute anatomy of scarlet fever, he has shown that in the large percentage of cases the antrum, together with the middle ear and sphenoidal cavity, were affected.

Symptoms.—The symptoms of empyema vary greatly, depending on the size of cavity, the exciting cause, and whether the ostrum maxillary is occluded or not.

In cases in which the antrum is well developed (which in the majority of cases can be readily diagnosed), and in which the normal opening has been closed, either by the irritation caused by the continual flow of pus, or from an acute rhinitis or hypertrophic condition of middle turbinated, or pressure caused by polypus, may be entirely different from the symptoms presented by a small circumscribed cavity with its thick walls under precisely similar conditions.

In the larger cavity there may be decided pain radiating to the teeth, a slight swelling or extreme sensitiveness upon pressure in the canine fossæ; swelling, more or less marked, of the cheek may be present; a previous history of pus in the nose at more or less regular periods; swelling under the eye, and sensitiveness upon pressure. In very severe cases the patient may complain of a continual sense of pressure in the eye, a sense of weight over antrum, inflamed condition of eye, double vision, etc.; also the field of vision may be contracted. Upon examination of nose, the membranous portion will usually be found bulging into the nasal cavity. This symptom is very valuable, as it may be the first in obscure cases that will be discoverable. Hartman found this symptom present in one-half of his cases. In a small cavity, on the other hand, these symptoms may be all absent, with the exception of pain, localized or not. The bulging of membranous portion may or may not be present. In some cases the only definite history you can get is that pus has been flowing from the nose.

I wish to dwell for a moment on pain as a diagnostic symptom. Of all of the symptoms it may be the most misleading. There may be no pain whatever radiating to the teeth or over the antrum. It may be infra-orbital or supra-orbital. It may be

parietal in location or occipital. In many cases also it is purely frontal, naturally giving the impression that if any of the accessory sinuses are involved it is the frontal. Sometimes it is in the opposite side of face than the one affected. Often the most painful spot may be directly in front of the ear, or the patient may complain of pain shooting down the neck. The flow of pus may be continuous or periodic, depending a great deal upon the condition of the nose, the absence or presence of polyps or hypertrophic conditions, and the position of a patient's head; if in an erect condition or reclining, the pus may flow forward or backward. It is usually seen in the middle meatus covering the anterior portion of the middle turbinated bone, or in the semilunar hiatus. In cases in which the nose is stopped up by growth, or in cases of an accessory opening of the antrum (which occurs once in every five cases), the pus will flow backward, and a continual dropping will be complained of in the throat. The condition also of the pharynx will immediately arrest your attention. In character the pus varies greatly, from a thick muco-purulent to a thin purulent, or in rare cases it is caseous. Also, unlike in ozæna, the smell is detected by the patient. A maxillary sinus empyema, which has lasted for years, may seriously injure the health of the patient. They are often anæmic, with sometimes a decided loss of flesh, lack of appetite, and rarely nausea has been noticed.

Bryant reports cases in which the patients shunned society, for fear "that the odor, so perceptible to them, would be noticed by their friends;" also cases in which melancholia has developed. Front reports troublesome cough at night, due to an empyema.

The duration of a chronic empyema is very variable. There are few reported cases of spontaneous cure. Even after operation and the most careful drainage, its course is indefinite. It requires, any place, from six months' to two years' treatment.

Antral Emp. Complications.—Although in the majority of cases the empyema of the maxillary sinuses run their course without any severer symptoms, yet they may become extremely dangerous, even causing death. If the nasal opening becomes closed by the inflammation caused by the continual flow of pus, or by an acute rhinitis, or by the mechanical closure due to polyps or hypertrophic rhinitis, the results may be serious. Many cases are on record in which the orbital plate has been perforated by the pressure due to the confined gas and pus, causing orbital

abscess and even meningitis, abscess of the brain, and death. The presence of pus in the nose may cause an inflammation of the ophthalmic duct, with an extension of the inflammation to the eye, followed by various ophthalmic symptoms, as conjunctivitis, iritis, panophthalmitis, etc. From an affected maxillary sinus the anterior ethmoidal cells and frontal sinus may become involved. Jeauty reports twenty-two cases, and Hajek twenty-nine, of serious results due to maxillary sinus empyema.

Diagnosis.—The diagnosis of a typical case usually presents little difficulty, but unfortunately it is rarely the case that the classical symptoms are present in their entirety. Occasionally the diagnosis is beset with considerable difficulty, especially if complications exist.

The unilateral flow of pus from the nose, either continuous or intermittent, leads one to suspect an empyema of either the antrum, anterior ethmoidal cells, or frontal sinus. If pus is discovered in the hiatus semilunaris, the diagnosis of an empyema of one or all of the above-mentioned cavities is confirmed.

However, the absence of pus does not eliminate the probability of an empyema. If the liquid portion of the pus has been evaporated, and it has become caseous in character, no evidence of it will be found in the nose. Usually in such cases a previous history of a unilateral discharge can be obtained from the patient. If the tissues of the middle meatus are contracted by a five to ten per cent. solution of cocaine, and the antrum is affected, pus will be seen in the hiatus directly under the anterior part of the middle turbinated bone. If wiped away by a pellet of cotton, it will reappear, and if the amount is copious sometimes a pulsation (light reflex) will be seen. This symptom was first pointed out by Walb and Schöller.

In cases where the amount is slight, if the patient is placed in a reclining position, with the head slightly lower than the body, and on the side opposite to the infected one, the pus will readily flow through the natural opening. Hartman recommends the blowing of a strong current of air through the nose. The danger of this method is the infection of the middle ear through the Eustachean tube. Tiem overcomes this difficulty by using a curved syringe and blowing the current of air through the posterior nares: The last-mentioned methods are but rarely resorted to.

In cases in which the middle turbinated will permit, the

antral cavity can be readily washed out through the natural opening, and if the nose is perfectly clean, and pus is found in the water upon washing, you know of a certainty that the antrum is infected. Unfortunately, in the majority of cases, this procedure is impossible until the middle turbinated bone has been removed.

Voltolini first originated the idea of diagnosis of antral empyema by the use of reflected light. At first this method was hailed as a positive means of diagnosis. But, unfortunately, it has not proven perfectly satisfactory. He said that if pus were present, or a solid tumor, the side affected would be darker than the opposite side. On the other hand, in hydrops. antrum Highmore, or cyst, the side affected would be more brilliantly illuminated than the non-affected.

Unfortunately for this method, the abnormalities of the antrum must be taken into consideration. An abnormally large antrum on one side, and on the other a small sized antrum (due to lack of absorption or the architecture of the jaws), even if both were in a perfect physiological condition, would show a marked difference to the light reflected, the larger naturally being much lighter than the smaller, due to the different degrees of thickness of bone composing the walls.

Take again the same case, and with the larger of the two antri affected by an empyema, if the pus was of slight amount, or very thin and watery in character, or if it had been partially emptied before the use of the reflected light, it might still present a lighter reflex. Such a case came under my own observation in the clinic of Hajeck. Moritz Schmidt, of Frankfurt a./M., first suggested the only positive way of diagnosis, and that is the probe puncture of antral cavity. This may be done by a straight or a curved needle, and one of two places may be selected, either in the middle meatus in the membranous portion, or in the very thin bone directly in front of the processus uncinatus, or in the inferior meatus directly under the inferior turbinated and at the juncture of the middle and posterior third of the bone. The puncture through the middle meatus is more or less dangerous, owing to the proximity of the orbit and the danger of injury to the eye.

The puncture through the inferior meatus is a little more painful, as the antral wall at this position is thicker, but the danger of wounding the orbit is reduced to a minimum. A straight needle is preferable, as it is more readily controlled.

The puncture through the canine fossæ should not be attempted, as the facial wall is often extremely thick.

The puncture through a tooth alveolus, for the purpose of diagnosis, is usually readily done, but if the lack of absorption of the floor of the antrum is marked, it may prove to be quite a difficult procedure, and if the roots of the teeth lie in juxtaposition to the floor of the nose, the probe will enter the canine fossæ or the nasal cavity, instead of the antral. The practice of extracting a tooth for the purpose of diagnosis cannot be too strongly condemned.

Of the various diseases that may affect the maxillary sinus, an empyema is the disease that most often requires surgical interference. There are several methods of gaining entrance to the antrum, and the principal of these I will describe somewhat in detail.

FIRST. *Entrance Through the Natural Opening.*—In some cases of acute and subacute empyema this method may be employed. In the majority of cases, before probing the opening, the anterior portion of middle turbinated must be removed. The natural opening may then be flused out, and if necessary, enlarged by a sharp hook.

In an old chronic case, with necrosis or caries, or complication of any kind, this operation should not be attempted, as it is extremely tedious and the damage of necessity is very bad.

SECOND. *The Operation Through the Hard Palate.*—In some cases of a well-developed antrum with palatal sinus, the formation of an empyema may show itself in the hard palate. Even in such a case the palatal operation should be condemned, owing to the difficulty of treatment and the ease with which food will force itself into the cavity.

THIRD. *The Operation Through the Inferior Meatus.*—This operation was first devised by Mickulicz, in 1887, and it has had such authorities as Cohen and Krause as its advocates. Cohen desired a special antrum drill for this operation, which is an improvement on the pear-shaped knife used by Mickulicz, as the opening made by it is much smaller, thus lessening the danger of the severe hemorrhage which often accompanies this method of operating. The shock is sometimes quite severe after this operation.

This operation has several disadvantages. In an antrum of normal size (that is, in one whose floor is on a level with the floor

of the nose) the opening is made at the lowest point, and the drainage should be perfect, provided there are no ridges of bone or inequalities of the floor of the cavity. If, however, the antrum is enlarged in size, the opening would be considerably above the floor, giving very poor drainage. In an abnormally small antrum, on the other hand, the floor of the cavity would be considerably above the floor of the nose, making the operation in some cases quite difficult. Again, if packing is required, it is a painful procedure, and in all cases the dressing must be done by the surgeon. The continued flow of pus in the nose is extremely disagreeable to the patient.

FOURTH. *The Operation Through a Tooth Alveolus.*—Usually the palatal root of the third molar is selected. This is, perhaps, of all the operations the one most usually performed, and in cases of large, well-developed antrums, is very easily accomplished. On the other hand, in small circumscribed cavities, this operation may prove to be quite difficult. If the antrum is abnormally small, and the teeth roots lie in the neighborhood of the floor of the nose, the drill may be found protruding into the nasal cavity or canine fossa. This is a very painful occurrence, and the hemorrhage accompanying the accident may be very severe. If the inequalities of the floor or ridges of bone or mucous membrane are marked, such a cavity will be found difficult to drain. The flow of pus in the mouth and entrance of food into the cavity is very disagreeable and injurious to the patient, although this difficulty may be partly overcome by a plate.

The canine fossa operation is the one preferred by a majority of the best authorities. An incision is made in mucous membrane from the second molar to the first bicuspid or cuspid at the junction of the mucous membrane of the cheek and alveolar process. The bone is denuded of the periosteum, and the antral cavity entered by drills or chisels. The opening can be made as large as desired. The entire cavity can be thoroughly inspected; pathological growths, ridges of bone or mucosa can be removed. If any necrosed bone is present it is readily seen. Packing can be more easily introduced, and treatment by this method is easy and not nearly so painful to the patient. If desired, an aluminum or rubber stopper can be introduced to keep the opening free, and the cavity can be readily cleansed by the patient.

Treatment.—The treatment of antrum empyema varies considerably, according to the case, and upon the care and thorough-

ness with which this is conducted often depends the result—whether good or bad. If, upon operating, caries or necrosis are found to be present, with foul-smelling pus, after removal of devitalized tissue, the cavity should be thoroughly flushed out with a solution of permanganate of potassium and packed with iodoform gauze. If no odor is present, or but very little, sterilized gauze may be substituted for the iodoform gauze, preceded by a thorough washing with a solution of boracic acid. Peroxid of hydrogen may be used after or preceding the washing out, if thought necessary. Beginning with a fifteen per cent. volume solution, diluted with three-fourths to one-half at first, and at last used in full strength.

If the peroxid proves irritating, as it may in some cases, Bryant recommends carbolic acid 30 grs., common salt 60 grs., to 8 ozs. of water as a good substitute. Mercury chlorid from 5 to 20,000 often proves very valuable.

In some cases that terminate unfavorably, Friedlander's dry treatment may be tried. After cleansing the cavity it should be dried thoroughly by a Politzer air-bag, followed by an iodoform or boracic acid insufflation. In spite of all treatment, no matter how thorough, pus may still continue to secrete, and upon thorough examination of the cavity by the probe, a spot of carious or necrotic bone will be found, or a ridge of bone or membrane forming a pocket for the collection of the pus; this must be removed, followed by thorough packing. Sometimes the irritation is kept up by the presence of cysts, granulation tissue, ulcers or polypi, or an encysted tooth; the only cure is thorough curetting. In the treatment of antral empyema there is one thing I wish especially to call to your attention, and that is the quantity of the solution used. A small syringeful of the solution injected through a narrow sinus is of little or no account. The opening should be large (one-fourth of an inch in diameter) and at least 1,000 to 1,500 cc. of the solution used. In this way, and in this way alone, can the cavity be thoroughly cleansed. Every depression and fold of the mucosa should be reached, and cleansed as thoroughly as possible if any results are to be obtained.



BRIEF SUGGESTIONS.

B. F. Arrington, D.D.S., Goldsboro, N. C.

When children are suffering while teething and the gums are inflamed and swollen spare not the gum-lancet, but cut freely and cut deeply if necessary. Good results almost invariably follow.

In the extraction of teeth the use of the gum-lancet is not essential, except to secure the easy application of the forceps so as to avoid the crushing of roots.

In treating for the cure of Rigg's disease, persist in the use of sealers (smooth-edge) as long as deposits on the roots of teeth are perceptible to touch. In the event of failure to remove deposits successfully with scalers, it will be useless to apply acids, for none known will dissolve them that can be placed in contact with the soft tissues without serious injury.

When teeth and gums are in a comparatively normal state, it is unwise to recommend the daily or weekly use of medicated dentifrices. Too much treatment often proves injurious.

Avoid the use of large, close set, stiff bristle tooth-brushes. They are never desirable, as they are relatively non-effective in the removal of débris and deposits, and frequently do injury to the gums.

For removing deposits and cleansing the proximal surfaces of teeth, the use of rubber strips or narrow linen tape is preferable to and more effective than floss silk. Once used their effectiveness will be recognized.

The daily use of a properly-shaped goose quill or whalebone toothpick is a good practice, and should be recommended.

Treat children's teeth (temporary) with properly-shaped excavators, burs and chisels and the free use of silver nitrate. Such treatment in many cases is better for the comfortable preservation of teeth than excavating and filling.

In excavating cavities in permanent teeth for filling with any material, be careful to remove all defective enamel and dentine, regardless of the possibility of pulp exposure.

Never attempt the removal of the pulp tissue from root canals, short of a week or ten days after devitalization. A certain degree of softening of pulp filaments must be effected for successful removal.

To obtain the best results in filling with gutta-percha, be careful not to stuff cavities with large pieces; small pieces not more than a sixth or eighth the size of the cavity work to better advantage. Pack carefully and with force from the base of the cavity, with heated pluggers instead of heating the material. Never apply chloroform to surface of fillings. A good article of gutta-percha rightly manipulated is quite durable, and the results generally satisfactory.

For cleansing teeth and especially for the removal of green stain, the most effective remedy, one never failing in its results, and entirely harmless, is a weak solution of sulphuric acid and pulverized pumice. The strength of the solution should be regulated to suit respective cases, varying from one of acid (C. P.) to fifteen or thirty of water. From three to five minutes is sufficient time to obtain the results desired. A solution in such proportions, used daily for months, would not produce any perceptible injurious effect upon the enamel of the teeth, but would often prove beneficial to the gums, as is evidenced in the use of the remedy in the treatment of Rigg's disease.

Never fill deep cavities, large or small, with gold or amalgam without placing a non-conducting material on the base of the cavity to protect the pulp against thermal shocks. It will require a little more time for the performance of an operation, but much lessens the danger of discomfort, and the risk of devitalization of the pulp.

In a large percentage of cases it is best not to decide until a cavity is thoroughly prepared what material for filling shall be used. This is the true line of eclectic, conservative and safe practice.

It is malpractice in preparing cavities for filling to cut away and destroy healthy enamel in order that gold may be displayed; and is a species of malpractice of which some dentists are often guilty.

A multiplicity of medicinal remedies in dental practice is objectionable, as but few are needed. A dozen, or even a less number, judiciously selected, will fully meet the general demand in daily practice.

Never crown or bridge on roots diseased at the apex. Unhealthy roots are seriously detrimental to health, and often set up grave disturbances of the nervous system. Crowns and bridges are sometimes needed, and when wisely and judiciously adjusted

prove a blessing; but are harmful and the cause of much annoyance and discomfort when placed upon diseased roots.

Never use anæsthetics in the extraction of teeth or roots, unless the patient is very nervous, and the operation promises to be tedious and painful, and then employ them under protest. The free use of anæsthetics in the operation of extracting is the chief cause of the daily reckless sacrifice of thousands of teeth that might be successfully treated and made useful for many years.

To indulge the whims of patients in dental practice, when it conflicts with good judgment and honest conviction, is unwise and censurable. A dentist should make his diagnosis carefully and then use his own judgment as to the character of the operation, the selection of material and the use of it.

Rarely if ever would a physician consent to remove any member or an organ, however badly diseased, if sure that treatment would ultimately effect a cure. The dentist should be equally conscientious with regard to the preservation of diseased teeth.

Patients confide in our judgment and integrity, and we must deal justly with them, preserve the natural teeth when we can, and consent to extraction only when all treatment has failed.

To avoid errors in practice we should carefully examine each case, considering well its every feature before giving advice or entering upon treatment. As dentists we owe a threefold duty—duty to our patients, to the profession, and to ourselves; and for the proper performance of these duties, should have not only clean instruments and clean surroundings, but clean hands, a blameless purpose and an unsullied integrity.

ABSTRACTS AND SELECTIONS.

CROWN AND BRIDGE PATENTS.—A DECISION WHICH MAY COST DENTISTS MILLIONS.

Some difference of opinion seems to prevail among the dentists of Baltimore in regard to the final results of the decision rendered in New York last Monday by Judge Townsend, of the United States Circuit Court, in favor of the International Tooth Crown Company against James Orr Kyle, a New York dentist. The decision confirms the validity of the patents held by the International Tooth Crown Company, of which Dr. L. T. Sheffield is president, on all operations known as "tooth crowns"

and "bridge-work." While it is technically against a single individual, it affects almost all of the dentists in the United States.

Litigation extending over seventeen years, and affecting claims which are estimated at present at \$10,000,000, led up to the decision of Judge Townsend. The strongest kind of a fight has been made during the entire period by the complainant company on the one side and by the Dental Protective Association, which includes practically the whole of the dental fraternity of the country, on the other.

The father of the system of applying tooth crowns was Dr. James Low, a dentist, who performed his first operation in 1877. In 1881 he took out certain patents on the process. At about the same time Dr. Sheffield devoted himself to the problem of the insertion of artificial between sound teeth by what is known as "bridge-work." To perfect the system, Dr. Sheffield purchased from Dr. Low the patents covering his original device, in this way acquiring control over the whole system of operations.

In a short time Dr. Sheffield's establishment became a training school for dentists from different parts of the country who desired to become proficient in the new art, and the system was gradually adopted throughout the country.

At this stage of affairs, to prevent use of the patent without payment of the royalty, it is stated that the patentee sold his right to a syndicate. A stock company was formed, with stock capitalized at \$1,000,000. And then the fight began. The company demanded the payment from all who did "crown-" and "bridge"-work of an annual license of \$25 and 15 per cent. of the cost of all operations, fixing also the minimum price for crowning a tooth at \$10, but requesting that the usual price be \$15.

Agents of the Sheffield Company were sent out all over the country to prevent any infringement of the patent. During the winter of 1886-87 an agent of the company discovered that Dr. R. B. Winder, who has died since then, and Drs. T. S. Waters, R. B. Roach, A. P. Gore and Marshall Smith, the first dentists in Baltimore to make use of the system of tooth crowning, performed the operation. They were promptly sued by the company. The suit was not pressed, but the company demanded that the dentists pay the annual license fee and the 15 per cent. on the cost of all operations. They refused to do this, and in a short time joined the Dental Protective Association, which had been organized a short time before by Dr. J. N. Crouse, of

Chicago, for the purpose of fighting the company. The Baltimore dentists were not again troubled by the corporation.

Several cases came up and were successfully contested by the Dental Protective Association, the greater part of the dental fraternity throughout the country having joined that association, and given it the necessary financial backing.

Some of the first suits won by the Dental Protective Association were won on the ground that Dr. Sheffield's patents had been anticipated by a Dr. Beardslee. The whole question was reopened in 1898, when the suit was brought against James Orr Kyle. This suit was also defended by the Dental Protective Association, but was lost.*

As the patent was taken out in 1881, it expired in 1898. Although the patent expired during the litigation the decision confirms the right of the complainant company to collect royalties on all infringements covering the whole existence of the patents. Dr. Sheffield claims that the amount due the Tooth Crown Company on royalties is not less than \$10,000,000. Injunction is refused, but the Doctor is given the right to call for an accounting, and it is understood that he will begin at once to collect what he can get out of those whose claims he can establish.

A Baltimore dentist said yesterday that probably two-thirds of all the dentists in the city now perform the operations of tooth-crowning and bridge-work, and if their claims could be established, it would mean thousands of dollars in the treasury of the Sheffield Company. "I attribute the loss of the last case," he said, "to the failure of the dentists throughout the country to support Dr. Crouse.

"However," he continued, "the decision is more opportune at present than it would be at any other time. The National Dental Association is in session now at Niagara Falls. Dr. Crouse is chairman of the executive committee of that body, and if concerted action is to be taken by the dentists throughout the country, the initial steps will probably be taken by the convention."

As an instance of the effective silencing power of the Dental Protective Association, another dentist referred to his experience

* This is an error. Dr. Kyle not being a member, the Dental Protective Association was not represented in the case, and took no part in the defence.—ED. BRIEF.

a little over ten years ago while practicing in a Western city. He was sued by the Tooth Crown Company for performing the operation of tooth-crowning and bridging without paying the prescribed royalty. Not feeling strong enough as a single individual to fight the corporation, he paid the amount of \$200, said to be due the corporation, and took out the license. A short time afterward he joined the Dental Protective Association and dropped all connection with the Tooth Crown Company, never removing the first license, but continuing to "crown" and "bridge" teeth. From the date of his enrollment in the Protective Association all prosecution by the Tooth Crown Company ceased.

Another dentist, who has a large practice in both crown and bridge operations, was inclined to view the matter lightly. He said that he thought without a doubt the case would be carried to a higher court. Until the appeal was made and the decision declared, he said that he refused to despair over it.

"Ethically," he said, "no dentist has any right to patent any contrivance used in his profession. A medical man who would patent a method of a formula would be ignored by all of the best men in the profession. Besides this ethical side of the case, there is the more practical side. The operation of crowning or bridging as carried on to-day is different from the original operation. It has been extended, modified and improved by individual practitioners.

"The trouble with the Dental Protective Association in this last case has been that Dr. Crouse has lost caste by opening a manufacturing association, and some dentists have mistrusted him on that account, and have failed to give the financial support to the Protective Association that it deserves. Those of us who are acquainted with Dr. Crouse know how time and time again he has neglected his own practice in the interests of the association."

All of the dentists agree that should the present decision be sustained by higher courts it would be extremely difficult to ascertain the indebtedness of any dentist to the corporation. Dentists are not noted for their superior quality of bookkeeping. Some kept their accounts on slips, which are destroyed on payment of the bills. Some keep their books in cipher, others follow the regular system. Only a few are likely to have the books containing the record for many years back.

In addition to the difficulty in getting at the dentists' records, the dentists claim that to prove the cases the patients would be obliged to go into court to testify that work was done by such a man, in such a place and at such a time, and this they would be unwilling to do.

A prominent lawyer of Baltimore, well acquainted with the procedure in cases of patent infringement, said that the course usually pursued to collect royalties from persons who have used a patented article or method is to send each person a printed circular in which the decision of the courts sustaining the patent right is quoted, and asking for an accounting. As a rule, he said, this is sufficient to cause the person who receives the circular to make up an account and settle with the proper persons. This, he added, is likely to be the method pursued by the owners of the patent for "crown-" and "bridge"-work.

Each dentist in the country will receive a circular and the action of each individual dentist will govern the subsequent proceedings in his case. If he submits a satisfactory statement, together with the sum of money that is due the owner of the patent right, no further proceedings will be taken, but if he refuses to submit a statement, or if his statement is not satisfactory, the owner of the patent right may bring suit against him and require him under oath to make a statement of the amount and value of "crown-" and "bridge"-work done by him during the life of the patent right.

As a general thing, continued the lawyer, persons who have used a patent right will comply with the demands of its owners and save the heavy court costs.

Editorial in the American Journal of Dental Science.

PHOSPHORUS NECROSIS IN ENGLAND.

The Government Report on "The Use of Phosphorus in the Manufacture of Lucifer Matches" is now out, and the three investigators to whom the work of preparing this report was entrusted are: Professor Thorpe, the principal chemist of the Government Laboratory; Professor Thomas Oliver, physician to the Royal Infirmary, Newcastle-on-Tyne; and Dr. George Cunningham, senior dental surgeon to the London Hospital. As it is admitted that so long as the "strike-anywhere" match made of white or yellow phosphorus continues to be produced, the condition of the teeth practically conditions the safety of the

worker, thus the dental section of the report is regarded by the other experts as the most important.

In fact, the Blue Book as a whole, proves clearly that the evils for which the Home Office is seeking a remedy are almost entirely a matter of dentistry.

In an introductory Memorandum, Mr. Arthur Whitelegge, the Chief Inspector of Factories, gives a summary of the main conclusions to be drawn from the three reports. He draws particular attention to the fact of how far behind foreign countries we are in regard to the matters dealt with.

Last year it was discovered that certain cases of phosphorus necrosis among work-people had been intentionally concealed, and that others had escaped record. It became known that Switzerland was preparing to follow the example of Denmark, in prohibiting the use of yellow phosphorus for the purpose, while Belgium had offered a substantial reward for the discovery of an effective strike-anywhere match made without yellow phosphorus. In France renewed efforts were being made to find an efficient substitute for yellow phosphorus, and to lessen the danger by hygienic precautions, more particularly by attention to soundness of teeth. Improved methods of manufacture, claiming to secure safety by largely replacing hand labor in the dangerous processes by machinery, had recently been introduced from America by one firm; but, with this exception, it became apparent from the reports of the inspectors that the conditions in British match factories generally were unsatisfactory, and that if the use of yellow phosphorus was to be continued, more stringent control of dangerous conditions than was possible under existing statutes and regulations would be necessary.

For the purposes of the inquiry, France, Belgium, Holland, Norway, Sweden, Denmark, Germany, and Austria were visited, and every facility was given by the respective Governments and by manufacturers. Information was also obtained from Russia, Italy, Switzerland, and the United States.

Dr. Cunningham has examined large numbers of match-makers, at home and in France, and has obtained further results from other sources. He finds that in the absence of special arrangement for regular dental supervision, the teeth are deplorably bad, a condition which all authorities now agree in regarding as inviting necrosis of the jaw.

Mr. Morton Smale, Dean of the Dental Hospital of London,

and Examiner in Dental Surgery at the Royal College of Surgeons, writes:

"I am of opinion that phosphorus necrosis can only originate under the following circumstances:

"(1) When dental caries has exposed the pulp (nerve) of a tooth.

"(2) During the healing process after tooth extraction.

"(3) During the time there is some lesion of the gum.

"Cases have been recorded which appear to bear evidence to the contrary; but the teeth had not been examined by a dentist, and severe ravages of dental caries may arise which only a skilled person can discover.

"In the hope of permanently arresting phosphorus necrosis, I would strongly urge that the suggestion should be carried into effect—that a dentist should be appointed to all match factories, whose duty it should be to keep the teeth of the workers in order, and be empowered to prevent any employes with a lesion in the mouth working in the factory.

"It is well known that bad teeth are the cause of much pain, dyspepsia, intestinal troubles, and malnutrition, and if these were prevented, as I believe would largely be the case, the manufacturers would be largely saved compensation and loss of service from pain or illness, and would probably be the actual gainers in the end."

This matter must claim prominence in any revision of the conditions under which the use of yellow phosphorus is permitted.

While the rules have led to improved conditions and lessened risk, it is now clear, says Mr. Whitelegge, especially in the light of the appended reports, that further advances are imperatively necessary, and that the rules must be strengthened accordingly. Some British firms have voluntarily taken action in the direction of efficient dental supervision and introduction of elaborate machinery, lessening the exposure to phosphorus.

Nor is the concealment of cases of necrosis, or at all events imperfect record of them, confined to the United Kingdom, as the reports of Dr. Thorpe and Dr. Oliver clearly show. In Germany, Austria and Switzerland there has been added difficulty from the surreptitious manufacture of matches as a home industry, necessarily under conditions which aggravate the dangers to health—a disastrous practice, which has not been attempted in Great Britain.

Phosphorus may be regarded as exerting a merely local action, or as becoming absorbed into the system and producing more remote effects, or in both lights.

It might not unreasonably be anticipated that the more or less acid fumes of oxidized phosphorus, either directly or in solution in the saliva, would promote decay of the teeth, and Dr. Thorpe shows experimentally that they exert a solvent action. The other observations bearing upon this point are negative. Bad as the condition of teeth among phosphorus workers is, in the absence of special dental care, it does not appear to be worse than that of persons of the same class engaged in other industries with which direct comparison has been made. There is, however, a suggestion that some local change is brought about, which renders the teeth difficult to extract.

There is conclusive evidence to show that the malady which has become familiar in connection with this trade, necrosis of the upper or lower jaw, arises from exposure to the action of yellow or white phosphorus, and that the use of red amorphous phosphorus is practically free from risk. How far the mischief is attributable to inhalation of fumes, and how far to handling of the phosphorus paste, does not clearly appear, but both must be regarded as elements of danger to be removed by all practicable means.

It has next to be noted that while this causation is beyond doubt, the evil effects are very far from being either immediate or constant. The reports show that the form of phosphorus poisoning met with in this trade is essentially a chronic process, taking, with rare exceptions, many years before producing its characteristic result—necrosis. Indeed, cases are recorded where the disease has first shown itself long after the patient had left the factory. Secondly, that unless there be caries of teeth or some exposure of the jaw, necrosis, and the conditions allied to it, do not result. Thirdly, that grave as phosphorus necrosis is, it attacks only a small minority even of those workers in phosphorus who, from the condition of their teeth, must be regarded as especially exposed to danger.

In the present state of knowledge it must not be assumed that yellow phosphorus is altogether harmless apart from its tendency to cause necrosis of the jaw, or even that the necrosis is a direct result of access of phosphorus to carious teeth. There are many considerations, practical as well as theoretical, which point to a different conclusion.

In whatever way the phosphorus may be supposed to bring

about in the course of years the changes in the jaw which end in necrosis, there are difficulties in the way of accepting the view that the poison is merely conveyed through the carious tooth to the bony tissue. A purely local causation such as this should produce more rapid and more invariable results.

Continental authorities have called attention to a tendency to fragility and fracture of the long bones, and slow process of repair, and this observation, if established, would lend support to the hypothesis of wide constitutional changes, of which necrosis and fracture are accidental results.

On the Continent there is recognized further a general impairment of health, phosphorism, attended with varying symptoms, to which persons working in match factories are liable. Upon this point there is difference of opinion, but there appears to be more general agreement as to the greater risk incurred by persons suffering from phthisis, syphilis, alcoholism, anemia, and, indeed, from debilitating conditions generally, including want of proper nourishment; and this again is in harmony with the view that an important factor in phosphorus necrosis is lowered resistance of tissues, however produced. Such conditions may be thought of as not only predisposing to disease, but possibly determining the time of attack where exposure to phosphorus has continued for years without apparent effect.

The negative results of certain experiments upon animals are inconclusive. Assuming that the phosphorus is presented in the same state as in the case of match-makers, and that the same consequences are to be expected in animals as in man, and that the conditions as to general health are equal, it has still to be remembered that the great majority of workers in phosphorus, and even of those among them who have carious teeth, escape necrosis altogether, and that the few who suffer do so only after years of exposure. Similarly inconclusive negative results are afforded by the experience of factories in which the manufacture of yellow phosphorus matches has for years been carried on under conditions which the experience gained elsewhere upon a wider scale shows to be dangerous.

The first and most important question, says Mr. Whitelegge, which presents itself is whether the use of yellow phosphorus is to be prohibited as in Denmark, or allowed under conditions necessarily very different from those which have pre-

ailed hitherto, stringent enough to ensure the safety of the work-people.

So far as the home consumption is concerned, it does not seem that the prohibition of the use of yellow phosphorus would involve any serious hardship, and this course had already been adopted by Denmark and decided upon by Switzerland, care being taken at the same time to prohibit the use or importation of yellow phosphorus matches. But neither of these countries has or had any export match trade to lose.

The Dentist.

DENTISTRY IN JAPAN.*

Louis Ottofy, D.D.S., Yokohama, Japan.

My first paper on dentistry in Japan must as a matter of necessity prove to be a disappointment to my friends, and this is true in face of the fact that I am surrounded with material for collection, methods of practice for observation, data for study, statistics and scientific facts for record, which, if not accomplished by those trained and versed in occidental methods and customs, must of necessity be lost to posterity. That I am unable to supply such paper as I would like to have read before the Chicago Dental Society, is due, first, to the brief period during which I have enjoyed the opportunity to study the situation, and to the lack of familiarity with the Japanese language. At this writing (February 4th) I have been in Japan exactly seven months. During the first three months of that time the complete change of life, custom and my establishment in business made it impossible to collect any material amount of data for my paper, and when I commenced to do so I found a serious disadvantage in my lack of knowledge of the customs and the language of the Japanese. The latter I am now attempting to learn. This led me to inform the program committee of your society to extend the time when my paper should be read, from January to March, with the result that at this time none of my observations have been sufficiently thorough or systematic to be placed on record as anything else than mere personal views on totally strange conditions. I shall, therefore, confine myself in this brief paper to a discussion of dental things Japanese, leaving for some future time the completion of the investigation and the study of matters of interest from a scientific point.

* Read before the Chicago Dental Society.

Before saying anything regarding dentistry in Japan, I wish to make the statement, that I have found all Japanese with whom I have come in contact—either practitioners, editors, teachers or dental dealers—strictly courteous, and my failure to elicit more information is due principally to my lack of knowledge of their language than anything else. I have visited a number of Japanese dental offices of the leading men—some of them graduates of American dental colleges—down to the smallest shops in the poorest of neighborhoods. I have been unable to learn much as to their methods of practice. I have found that the roots of teeth are filled with cotton, which is an extremely pleasant filling material when viewed from the standpoint that it is very simple for me to remove the tooth filling when cases of abscess present themselves. Crowns are only made by a few, and all those which I have as yet seen were gold caps, on centrals and cuspids, as well as on bicuspid and molars. Bridge-work is practically unknown, and continuous gum work is entirely unknown. At least, it is claimed by the Japanese that their people will not and many cannot pay the fees this class of operations must command. Artificial dentures are confined to the rubber base, using principally plain teeth, the roots of broken teeth being permitted to remain *in situ* and unfilled; the impression is usually taken in wax or modeling compound. A good quality of cement, resembling the preparations of the German formulæ, and a bad quality of gutta-percha are used for filling purposes. Of the amalgams on the market I know as yet nothing, and they make poor fillings with them. Gold foil is made here equal to anything I have used in the States, and with the use of ammonia I am enabled to alter its cohesiveness according to my desire. I have seen a large number of gold fillings which were made by the Japanese which would be serviceable and very creditable indeed if they only protected the margins of the cavity, and did not have such an irresistible desire to peel off, little by little, or come out altogether in too short a time. All gold fillings are beautifully finished on the labial surface, the lingual evidently not being considered so important, not being exposed to view. With such as I have seen, penetrating into many of the dental offices, no American dentist could work at all; in most of the offices there is the usual Japanese style of window, which is simply a line of glass, from eighteen to twenty-four inches wide, running the full length of the room, about four

feet from the floor, throwing fair light, I judge, on the chest of patient. I noticed that some operators have also observed this fault, and have had a skylight made, which would enable a man to have ample light to put in a filling in a tooth embedded in the frontal bone. It so impressed me that these two conflicting lights only made the darkness, where the light ought to fall, more intense.

With few exceptions the chairs are all old style; some few foreign-made dental engines are in use, most of the engines in use are of Japanese make. The practice of blackening the teeth, as a symbol of the marital state, on the part of women, is becoming obsolete, yet a number still continue the practice, and I have seen a cleverly made plate, the missing incisor having been made of black rubber, neatly carved to resemble its neighbor; full sets of black teeth are thus made, without using any teeth at all. I visited three out of five of the dental depots and dental goods manufacturers; they all carry a fairly good line of goods, many of them imported and many made here. I have not had occasion to purchase any instruments as yet. I noticed they look well and are finely finished, and (as a dentist here told me) they would be very good if they would not bend under pressure. I told him I found no fault in that, but in the instruments he showed me, the fault was, that after bending under pressure they did not resume their original form, which to my occidental way of looking at things, was a serious fault. He told me he experienced the same trouble with the forceps, of which he showed me a pair; the handles are strong and will last a lifetime, but the beaks just "give" a little, that's all; after a time a pair intended for the incisors has spread enough to be used on the molars. On the whole, the imitations are clever, but from personal experience I cannot speak of the utility of the instruments. I notice that most of the teeth made in Japan for rubber work are pinless, having an undercut for the retention of the rubber (platinum being expensive), and pinless teeth having been found to lack in strength, they make a tooth with an undercut, into which, by means of sulphur, pins of German silver are sweated, a clever thing representing much labor, costing 3 sen or one and a half cents each, and, of which I am told, dentists make full sets of teeth, for either jaw, at 3 yen each or for \$1.50 United States currency.

I have noticed that the Japanese are undoubtedly a prog-

nathous race. From a cursory observation I would judge that this condition prevails in not less than 70 per cent. of the race. When time permits I shall secure some reliable statistics on this subject and present such views as I now hold as to its cause, which is probably found in the methods of prehension practiced by the race since times immemorial. I also observe that irregularity of the teeth is very prevalent.

I have not yet been able to learn anything definite as to the number of dentists in Japan (the country's population in round numbers is forty million), and as near as I can learn there are probably ten who are graduates of American dental schools; the four whom I have met are splendid gentlemen. There are about two hundred so-called licensed dentists, and it is impossible to say how many "students" and others practice by tolerance. The total number, good, bad and indifferent, legal and illegal, practicing in the empire has been variously stated to me to be anywhere from one to three thousand.

A large number of books have been written by Japanese and many translations have been made, of which I have compiled a partial list, and the most important among them are:

Fillebrown's Operative Dentistry.

White on Taking Impressions.

Webb's Operative Dentistry.

Dental Jurisprudence from Amer. Syst. Dent.

Metallurgy, from same.

Essig's Dental Metallurgy.

Richardson's Mechanical Dentistry.

Gorgas' Materia Medica.

Rymer's Dental Anatomy.

Anatomy from Harris' Princ. and Pract.

Dental Physiology, from same.

Pathology, from same.

Abbott's Dental Pathology.

Garretson's Oral Surgery and Parreidt's Compendium of Dentistry, which some years ago I translated from the German into English, and quite a number of other extracts from other well-known American books. At some future time, when I can complete the list, I shall have it published. There are four dental journals, all published in Tokio. A résumé of their work will have to be prepared some time in the future.

Strictly speaking, there is only one dental school, so-called.

This school issues a certificate at the close of a course of instruction, the efficiency of which I am unfamiliar with, the inefficiency I am perfectly able to comprehend. There is a national board of dental examiners, about which I know nothing.

There is a hidden power in Japan which has so far prevented the government from taking recognition of education in dentistry, while since 1887 it has authorized the conferring of the degrees of: Doctor of Law, Doctor of Medicine, Doctor of Engineering, Doctor of Literature, and Doctor of Science; and while on December 9th, 1898, it added to those degrees the following: Doctor of Pharmacy, Doctor of Agriculture, Doctor of Forestry, and Doctor of Veterinary Medicine, it is a notorious fact that the government wholly ignores dental education as a department of science. Of this more anon.

I have further made some inquiries into the industry of the manufacture of tooth brushes and tooth powders in Japan, and trust at some future time to give specific facts and data on these important topics, and to furnish specimens, not only in these lines, but in many others of interest to the profession. I trust that during the summer, D. V., to make some tabulated records of the condition of the teeth of a prehistoric race, wholly unlike the Japanese, and known as the Ainos, who inhabit some of the northern islands of Japan, and a race which may well be likened to the North American Indian therein that the origin of the race is unknown, and that it is rapidly, like the mound builder, Aztec and North American Indian, passing from the face of the earth.

I trust my friends will excuse this incomplete paper, written, of necessity, after a barely cursory view of the conditions in a land whose dental history is practically unrecorded, and in which my investigations will be made only for the purposes which must result in an improvement of the existing conditions in and for the profession which I love so well.

Dental Review.

SOCIETY OF ANÆSTHETISTS.

A meeting of this society was held on March 17th at 20 Hanover Square, W., Dr. Dudley Buxton, President, being in the chair.

Mr. Bellamy Gardner read a paper on "Nitrous Oxid Gas and Oxygen as an Anæsthetic in Surgical and Dental Operations." He referred to the well known characteristics of the anæsthesia obtained by this mixture, narrating the signs associated

with it. With regard to the use of this mixture in dental surgery Mr. Gardner pointed out that short operations, such as tenotomy, catheterization, moving stiff joints, pelvic examination, etc., could be satisfactorily performed under its influence. After the administration had lasted a few minutes from 15 to 20 per cent. of oxygen was required to avoid muscular rigidity. The actual anæsthesia was not so profound as that obtained by chloroform or ether; the liability to the excitation of reflexes of adjacent limbs, etc., or reflex alteration in respiration was increased. Retching movements and sickness could not be controlled by "pushing" this anæsthetic, hence its value to boys and girls between 10 and 15 years of age was lessened. Florid, alcoholic, and muscular men and small children were not good subjects. With children under five years of age Mr. Gardner had not met with success. The administration itself could only be achieved by the expenditure of 40 gallons of the mixture over a quarter of an hour; thus two 50-gallon bottles of gas and one 24-gallon bottle of oxygen would be required for an operation taking over half an hour. The possibilities of the mixture, according to Mr. Gardner, were limited by (1) the production of only a moderately profound anæsthesia with tendency to muscular rigidity reflexes; and (2) its unsuitability for young children.

Mr. Alexander Granville read notes of a case ending fatally after the administration of gas and oxygen and chloroform. The patient, aged 17 years, was apparently healthy. The operation was for radical cure of varicocele. Gas was given first and anæsthesia was readily induced. Oxygen was allowed to mix freely with the gas. Slight duskiess was noticed at times, which was relieved by giving more oxygen. This mixture was employed for 20 minutes, and the operation lasted double the expected time, the supply of gas ran short, and the patient resumed consciousness; he moved, groaned, and the operation was temporarily suspended. His pupils became small, his breathing was regular, and his pulse was 116. Chloroform was then administered, when after four or five minutes the pulse, which was being watched all the time, suddenly weakened. The chloroform was at once withdrawn, the pulse quickly became imperceptible, and the breathing continued deep and regular for about five minutes longer. Every effort was made to restore the patient but without success. Mr. Granville thought that the case showed the inadvisability of giving chloroform after gas and oxygen, as he had

little doubt that the patient's heart became dilated during the administration of the gas and oxygen, and that the chloroform, although given in small quantity, still further permitted dilatation, and finally inhibited the heart's action. The gas and oxygen, he thought, were accessory before the fact.

Mr. Noble mentioned a case in which gas and oxygen were administered, and when the anæsthesia was complete cyanosis became marked, although stertor and jactitation were absent. A tooth was extracted when respiration at once stopped, but after pulling forward the tongue and compressing the thorax respiration recommenced after two minutes, being slow, shallow and sighing. The same patient had taken gas previously with a similar cessation of respiration.

Mr. Bellamy Gardner and Dr. Flux deprecated the death being attributed to gas and oxygen.

Dr. Silk's experience went to show that the after-effects of gas and oxygen were more varied and more frequent than those consequent upon nitrous oxid alone. He pointed out that the physiological effects of the gas and oxygen might persist in the individual even when he appeared to resume consciousness, and it was quite conceivable that chloroform might increase these effects and finish what the mixture had commenced. He cautioned against the mixture being employed indiscriminately, as no doubt its value would thereby be lessened.

Mr. Crouch narrated a case of a patient to whom he gave gas diluted with air and found evidence of dilatation of the heart during the administration. He had had precisely similar experience in giving gas with oxygen, in which case he carefully noted the condition of the heart.

The President spoke a few words of warning against the elevation of the mixture into a kind of panacea among anæsthetics. He found that many persons had formed the most extravagant conception of its possibilities, and were not aware of its limitations.

Dr. McPhail having narrated his experiences, Mr. Bellamy Gardner replied.

Lancet.



NOTE ON A CASE OF ASPHYXIA FROM PRESSURE
OF AN ABSCESS UNDER THE CHIN WHILST
UNDER THE INFLUENCE OF NITROUS
OXID.

*Howard H. C. Dent, M.B.Durh., M.R.C.S.Eng., L.R.C.P.Lond.
House Surgeon to the Queen's Hospital, Birmingham.*

A boy, aged 12 years, was brought to the Queen's Hospital, Birmingham, on March 18th, 1899, with a large swelling containing pus between the chin and the hyoid bone. The lad was very ill and was evidently suffering from septic poisoning. The lower jaw was almost immovable, the mouth being slightly open. He had been ill for 10 days, but had not complained of difficulty in breathing. Gas was administered in the recumbent position, and the patient appeared to go under its influence more quickly than is usual, and his breathing was not nearly so full as is generally the case. The face-piece was removed, and an incision was made in the middle line over the swelling. The incision had only gone through the skin when the respiration became embarrassed and air ceased to enter the chest, although the movements of the thorax continued. At the same time there was a spasm of the jaw, and slight convulsive movements of the limbs occurred. The tongue was with difficulty pulled forward, owing partly to the spasm and partly to the enormous amount of inflammatory thickening about its root. Artificial respiration was at once commenced, but no air entered the chest although the tongue was drawn well out of the mouth. Tracheotomy was performed and respiration was kept up for one hour, air entering freely through the wound, and ether was injected under the skin and directly into the heart, but there were no signs of recovery. On opening the trachea a small quantity of pus was forced through the wound, and it was thought that the abscess had burst into the windpipe and caused suffocative spasm.

At the necropsy an abscess of the size of a small orange was found excavating the body of the tongue and sitting on the top of the larynx. There was some pus in the trachea, but no communication with the abscess could be found. The other organs were healthy. The usual signs of asphyxia were present. Death appears to have been due to pressure of the abscess on the glottis, acting either directly or by causing spasm of the spincter laryngis. This pressure would be increased by (1) the recumbent position; (2) the extension of the head necessary to open the abscess; and (3) the pressure of the knife.

Lancet.

IMPRESSION COMPOSITION.

A correspondent, N. T. A., asks us if it is possible to procure a reliable formula for impression "compo." We submit the following, which has been prepared by Mr. Evan Jones at our suggestion:

French chalk, 7 lbs.

Gum Kauri or Damar resin, $3\frac{1}{2}$ lbs.

Stearine, $2\frac{1}{2}$ lbs.

Color with carmine and flavor to suit taste.

Having carefully melted the stearine in an enameled saucepan on a gas stove or slow fire, you now proceed to sprinkle in a little of the gum, which should have been finely ground and separated from all dirt, stirring it with a stick to keep it from burning. This will take some time, as the gum must be thoroughly dissolved before the chalk is added. When it is quite ready for the chalk, a little should be dusted in, stirring it well to keep it from clogging. The coloring and scenting are left entirely to the taste of the operator. When all the ingredients are in the saucepan, the stirring must go on until the mixture is entirely free from lumps and works quite smoothly. During the mixing, the operator should, from time to time, take a small portion of the compo on the end of a knife and plunge it into cold water for a minute, so that he can handle it, and then knead it a little with the fingers to see if he has added sufficient chalk. This should be done several times until the right consistency is obtained. The preparation must now be poured into a tray, which has a little cold water in it to prevent it sticking. When it is cool enough to handle, the compo must be thoroughly kneaded, and then made into thin sheets or pressed into molds.

We have tried the above and find it as satisfactory as anything we have ever used for the purpose. It gives a sharp impression, hardens quickly, and when properly made, does not stick to the fingers in manipulation. In order to give the best results, it requires thorough working by kneading.

The Dentist.

TEMPERING INSTRUMENTS.

Dr. B. C. Bocseke.

After filing your steel down to the required thickness, polish it, then decide where and how you want to bend it. Heat and bend while it is still hot, using a copper or brass hammer, which will not dent the steel as much as a steel one. Now, after you have it in the required shape, polish out any hammer marks that might be on it, and you are ready to temper. To do this you first coat the instrument with a layer of wet salt and dry it on; this

will prevent any scaling. Bring your oil or water near to your gas flame. If the instrument is small it is best to hold the burner so that the flame is just over the water, for, if you have the flame away from your cooling fluid, in bringing the instrument to it it loses some of the heat, and your temper will not be as good. Having everything in readiness, heat to a cherry red and suddenly plunge into water. Then polish, being careful not to break the point, which is very brittle; draw the temper by heating quite a distance from the point, using a small flame, watching the colors carefully, so that you will have a straw color at the cutting edge, and blue color at the point where the greatest strain comes; this being a spring temper will lessen the liability of breakage.

When the temper is drawn sufficiently, plunge into cold water and give a final polish, which is easily done by having leather wheels or buffs, five or six inches in diameter mounted on the lathe, using on them a combination of paraffin and emery powder; finish with crocus or rouge. A great deal depends upon this polish, for the finer it is the easier it will be to keep the instrument clean and in an aseptic condition.

Pacific Medical Dental Gazette.

NERVANIN.

Dr. A. D. Kyner, Blue Mound, Ill.

Within the past year orthoform has filled a place that has, heretofore, been practically unoccupied by any remedy possessing the necessary qualifications of a topical anæsthetic. Such a remedy should be non-poisonous and of slow solubility. None in use was non-toxic; all were too rapidly absorbed and their action of but short duration. The slow absorption of orthoform by the tissues, its absolute non-toxicity and antiseptic properties fulfil all the requirements for such a preparation. The great success attending its use made it most desirable to obtain this salt in a soluble form for subcutaneous injections. The inventors, Prof. Einhorn and Dr. Heinz, have succeeded in obtaining a soluble compound of neutral reaction, and have named it "Nervanin." Experiments have demonstrated that nervanin is but one-tenth as toxic as cocain. Eight grains were found to be the maximum dose that could be administered subcutaneously without injury, and the experience of Drs. W. Rotenberger, Marcus and others confirm its practical non-toxicity.

For the extraction of teeth, a 5 per cent. solution is employed, and, like eucain, the solution may be boiled without decomposition. A sterilizing agent need not be added, as nervanin in 1 per cent. solution prevents bacterial growth.

I believe that a 5 per cent. solution of nervanin, if properly injected into ordinarily healthy gum tissue and allowed to act for from three to five minutes before operating, will produce a deeper, more profound and more prolonged anæsthesia than either cocain or eucain B. In extracting difficult roots, patients have experienced no pain when the alveolar process was cut through to grasp the root. I have never obtained this immunity from pain with other anæsthetics, and therefore believe that it penetrates deeply. The anæsthetic effect is prolonged for a number of hours after operating, as careful inquiries made of patients for whom I had extracted record absolute freedom from after-pain. Careful attention was given to the gums to note whether any irritation was produced, and in every case examined the gums rapidly returned to a normal condition without œdema or sloughing. The non-irritating properties thus shown will especially recommend themselves to all who do not wish to treat "sore gums."

Items of Interest.

THE HUMAN BODY.

1. Human beings are of all sizes, but the tall man is less common than the short; only one man in every 208 exceeds the height of six feet. For every foot of stature a man should weigh from twenty-six to twenty-eight pounds, a proportion that is not the lot of all in these hurrying, scurrying days.

2. An average-sized man weighs 140 pounds, a woman 125 pounds. Curiously enough, the mean weight and height of lunatics are below those of sane people. Another unexpected thing in this respect is that a negro's skeleton weighs more than that of an Englishman.

3. The vitalizing power is the blood, a drop of which takes but twenty-two seconds to go the round of the body. There passes through the heart once in every three minutes an amount of this precious fluid equal to all that is contained in the body.

4. The mileage of the blood circulation reveals some astonishing and undreamed of truths. It is estimated that, assuming the average speed of the heart to be sixty-nine beats a minute, the blood travels 207 yards in sixty seconds; in other words, seven miles an hour, 168 a day, or 6,320 per year.

5. If a man of eighty-four could have one single blood corpuscle floating in his blood all his life, it would have traversed in that period no less than 5,150,808 miles.

6. The average weight of the brain of an adult male is three pounds eight ounces, of a female, two pounds four ounces. The woman's brain begins to decline in weight after the age of thirty, the man's not till ten years later. According to high authorities, the nerves, with their branches and minute ramifications connecting with the brain, exceeds 10,000,000 in number.

7. The palms of the hands and soles of the feet are composed of cushions of fat, that sudden jolts and violent blows may be successfully resisted, and no injury done to the bones and muscles underneath.

8. The muscles—of which the tongue monopolizes eleven—and bones of the human structure in combination are capable of more than 1,200 different motions.

9. The teaching of experience indicates that accidents are far more likely to occur to the right leg and arm than to the left. Further evidence of this fact is supplied by the makers of artificial limbs; they dispose of many more appendages to the right side of the body than to the other. Statistics show that in fifty-four cases out of a hundred the left leg is stronger than the right.

10. If a man could move his legs proportionally as fast as an ant, he would travel not far short of 800 miles an hour.

Information.

CLEFT PALATE.

Dr. D. Brandt, in his work on congenital and other defects of the palate, draws attention to the necessity for the coöperation of the surgeon and the dentist, and discusses the question of the relative values of operative and mechanical treatment of congenital defects of the soft palate. The author describes the different methods of closing the fissure by mechanical means, as by the soft rubber velum employed by Kingsley, and by the hard rubber hollow Suersen obturator constructed on sound physiological principles. A device of the author's is also described in which the fissure is filled by means of a cleverly devised pneumatic apparatus, inflated through a tube carried along the plate covering the hard palate. If the operation is undertaken, as the author advises, in earliest infancy, he considers that the attempts to improve the speech should not be undertaken before the sixth year. The combination of both

methods—the plastic obturator for closing the fissure and the use of a mechanical operation, is carried out with due regard to the future application of that apparatus. *The Dentist.*

PRECOCIOUS DENTITION.

V. Joukovsky, in a communication to the *Revue Mensuelle des Maladies de l'Enfance*, March, 1899, describes two types of teeth. In the one variety the teeth are modified in structure and form. They are small, diminished in all their dimensions, and sometimes atrophied and carious at birth. They are always covered with a discolored enamel and are movable in their sockets. These teeth not only begin prematurely, but are placed superficially, the crowns developing before the complete formation of the gum. The second variety pertains to the true teeth, which are very solid. Joukovsky reports a case of this character. The family history showed no hereditary predisposition; there was no history of syphilis; the maternal grandmother died of phthisis. There was nothing specially abnormal noted about the child at birth. At the first nursing the mother recognized some defect, and on examination there were discovered two congenital teeth, the lower median incisors. The right was larger than the left and pushed it forward. The teeth were very solid in their sockets, and when first examined there was no mobility. In form and color they resembled the normal teeth. There was no local modification of the gum. The general state of the infant was perfect. On the fourth day the mother complained of pain at each nursing, and inspection of the infant showed ulcerations on the inferior part of the tongue, and a very pronounced inflammatory reaction around the teeth. The lingual aspect of the gum was in particular the seat of considerable tumefaction. It was hot, and deep red in color. With this, the teeth loosened and the surrounding gums became rather fungoid and bleeding. The teeth were considered the cause of the trouble, and also of the existing excoriations on the breast of the mother. The injury to the gum caused by the teeth was evidently accompanied by infection. Following the advice of H^{enoch}, that the extraction of these precocious teeth is absolutely necessary in order to avoid the development of morbid process in the alveoli, the teeth were immediately extracted. They resembled in every particular the normal milk incisors. The cause of the development of these teeth is not known. The possibility of a periostitis commencing during fetal life is suggested. That the condition does develop in a state of perfect development and nutrition is distinctly shown by this case and by others, and it is also shown that it develops in conditions of defective development of the skeleton, as in rachitis.—*Phila. Med. Jour.*

THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

HORACE WELLS.

The eleventh day of December, 1844, was made memorable by a discovery which exercised a far-reaching influence on the welfare of the human family. The discovery was anæsthesia; the discoverer Horace Wells.

As a frontispiece to this issue of the BRIEF appears a reproduction in half-tone engraving of a recently completed bust dedicated to his memory by the dental profession of America. Those conversant with the history of Horace Wells cannot but be reminded of how all too late for his happiness comes our recognition of the full significance of the services he rendered humanity.

How great was this service can hardly be fully realized by a generation for whom surgery's kindly cruelties are robbed of half their terrors by that lethal draught his hand first proffered to human suffering; but Wells, like so many others to whom the world owes greatly, died with the debt unpaid.

A melancholy interest is added to this thought by the following pathetic and beautiful letter, in which something of the tragedy of his life is told, and which, in so far as is known, is now for the first time given to the world. It was in all probability addressed to the late Professor Samuel D. Gross. The original is still preserved in his library, where it was recently discovered by the present writer, and is of such interest to all who cherish the memory of Horace Wells that it is here reproduced in facsimile:

Hartford April 1860.

Sir

As the widow of Dr Horace Wells I beg leave to address you. The discovery which my husband made and which has so largely benefitted mankind has been to his family only a source of bitter misfortune. The experiments which he constantly made upon himself terminated fatally and he died in fear and despair that the fame due him would not be accorded after his death.

The only inheritance which Horace Wells has left is the reputation which he had earned as a benefactor of mankind and my highest ambition is to leave this unquestioned before the world.

In pursuance of this object it is my intention to bring this subject before the Medical Convention to be held at New Haven during the coming summer. I feel assured that there at least I

shall have a full and patient hearing and
that my husband's brother physicians will
deliberate well before they forsake a just cause
when it is that of the widow and orphan.

Although it may now be too late to do any thing
but justice to my husband's memory, I pray
that at least this may be accomplished and
that the evidence that he is the true discoverer
may be endorsed by the Medical Convention.

To this end let me beg you to give some
attention to the evidence which will be
forwarded to you. It has been prepared
by the friends of a helpless woman whose
duty it is to redeem the memory of a good
man and rescue the credit of his discovery
from the grasp of men who presuming upon
his sensitive nature and afterwards upon
my helpless widowhood have laid claim
to a discovery which I know belongs to
my husband alone

Yours respectfully
Elizabeth Wells.

How such an appeal for the recognition of a great benefaction could have become necessary may be briefly told. Wells had conceived and repeatedly demonstrated the great principle that by the influence of a narcotic gas, safe in its action, unconsciousness to pain during surgical operations could be secured.

Filled with generous enthusiasm, he hurried not to Washington to secure a patent-right monopoly in, but to Boston to freely make known his discovery. The medical faculty he found, as was natural, skeptical, but finally, as he states in his own "History of the Discovery," an opportunity to demonstrate the virtues of nitrous oxid in a case requiring the amputation of a limb was promised him. This operation being postponed, he was offered in its stead a case of simple tooth extraction. The gas was administered, but the bag being removed too soon the anæsthesia was imperfect, the patient made outcry, and amid the hisses and jeers of the medical students present Wells, regarded as a charlatan and impostor, departed from the scene so crushed and humiliated that an illness followed, which compelled him to relinquish for several months all professional pursuits.

A man of more rugged nature would not have succumbed so readily to a single adverse turn of fortune; a bolder man—or a luckier—would not have withdrawn the gas-bag too soon. And what a difference in the life of Wells and in the whole course of subsequent events might have followed the administrations of a single gallon more of gas to the subject of the experiment!

If he had succeeded in this public test of the anæsthetic power of nitrous oxid, the rapid surgery of that day would have made amputations and many other operations perfectly practicable with that agent; the fame of Wells would have been secure, and the subsequent introduction of ether vapor by Morton would have been viewed in its true relation to the original discovery, that of a most valuable substitute, for which Morton would have been, as he is, entitled to all honor—as also is Simpson for the introduction of chloroform—but an honor which

could, and should, in no sense detract from the merits or invalidate the priority of Wells' original conception.

But "no one can be more wise than destiny" or escape the tyrannous mastery of temperament. Others more masterful than he, and better knowing "the mechanism of fame," seized upon the opportunity he had failed to firmly grasp. That "tide in the affairs of men which leads on to fortune" he had not "taken at the flood," and "all the voyage of his life was bound in shallows and in miseries."

Horace Wells was a gentleman in all the implications of that good old word. Had he been less gentle, less unselfish, his life might have been happier, his success greater. He was not framed

"To grasp the skirts of happy chance,
Or breast the blows of circumstance,
And grapple with his evil star."

Fate, which, as it will, attunes our lives, whether to harmony or dissonance, smote with too strenuous a touch his sentient heart strings, and they, with all their music "jangled out of tune," broke beneath the strain. And so bereft of reason, and when but thirty-three years of age, he died by his own hand.

His bust, upon a simple pedestal of onyx, is to be placed in the Library of the Army Medical Museum in Washington. It was modeled by the distinguished sculptor J. Scott Hartley, and, with the exception of the bronze statue of Wells which adorns Bushnell Park in the city of Hartford, Connecticut, is the most important work of art thus far produced in his honor. It is fitting that it should find place in the capital of the nation upon whose annals his beneficent discovery has shed such lustre, there to portray to all coming generations what manner of man he was, and preserve his memory as one worthy, not only of the nation's gratitude, but of the grateful remembrance of all mankind.

THE RECENT DECISION IN CROWN AND BRIDGE PATENTS.

In the September BRIEF attention was called to the decision of Judge Townsend, in the United States Circuit Court of New York, sustaining the validity of the Low and other patents on crown and bridge work held by the International Tooth Crown Company, in a suit entered by the company against James O. Kyle, an alleged infringer.

Since the appearance of the September issue many inquiries have been made in regard to the scope of this decision and the pecuniary liability of those who, during the life-time of these patents, employed crown and bridge work in dental prosthesis.

There can be no question that if a reversal of the decision is not obtained, all such persons will be compelled to pay to the International Tooth Crown Company office rights and royalties for the entire period during which they made use of crown and bridge work in their practice. There is also no question that if the decision is not contested it will not be reversed.

Three courses are therefore open to infringers: First, to make such a settlement with the company as they may be able to obtain; second, to contest the decision at their own personal cost; third, to contest it through associative agencies. If disinclined to the first named of these courses of action, there would seem to be but little reason for hesitancy in deciding as to which of the remaining alternatives it would be wise to adopt.

Eleven years ago several thousand dentists, under the leadership of Dr. Crouse, of Chicago, organized what is known as the Dental Protective Association; its chief purpose being to test in State and federal courts the validity of the crown and bridge patents. As explanatory of the present position of this association upon the question at issue and its availability as an agency for defence, the following extracts from the "Official Announcement of the Dental Protective Association," signed by the chairman, Dr. J. N. Crouse, and bearing date October 7th, 1899, are here presented:

"It is probable that every dentist in the United States has

heard of the recent action of the International Tooth Crown Company. As this corporation is proceeding aggressively against the dentists, and as the Protective Association was organized to conserve the interests of the profession, and to prevent its members from spoliation, it is appropriate that the chairman should at this time make a plain statement of the present issues.

"In 1888 the Crown Company secured a decision by the highest court in the Southern District of New York State, declaring some of the various patents on crowns and bridges valid. With this in their favor they immediately started through the country collecting royalty, the terms imposed being \$25 per year license fee and 15 per cent. on all work done. Those dentists who signed a license agreed thereby to the validity of some thirty-eight different patents which the Crown Company had secured on various devices.

"At this stage of the proceedings the Protective Association was organized, and within six weeks it had stopped the Crown Company from enforcing their patent claims. The association drove them from one court to another, they withdrawing and paying costs rather than to make a test case, until they reached the federal district, in which they had previously obtained their favorable decision. It was here that the association succeeded in having the former decision of these courts reversed and the Low bridge patent declared invalid; first before the Federal Judge in the Circuit Court, and afterward in the United States Court of Appeals. This supposedly ended the fight with the Crown Company.

"This litigation of years had exhausted the funds of the association, and in order to pay the bills it became necessary to call for the assessment authorized by the By-Laws. Only a small proportion of the members paid up the assessment, hence it was necessary to sell some valuable interest-bearing securities which the association held. When our liabilities were cancelled, many dentists, and even members, thought there was no further need of the association. No more mistaken idea could have been held, as recent events show clearly the need of a permanent organization, but nevertheless the apathy was widespread. This indifference, combined with slanderous reports concerning the use of funds, led to distrust, and for the time being almost destroyed the effectiveness of the work of the association.

* * * * *

"Encouraged by the prejudice which had been created against the association, the Crown Company reorganized, combined with individuals of large means, and began a questionable effort to secure a reversal of the last decision. Their argument was, that having obtained a favorable ruling on their patents at one time, and having had this reversed at a second hearing, they were entitled to a third trial. On July 31st, 1899, Judge Townsend, of

the United States Circuit Court, gave a decision which practically overrules or reverses the former one which declared the patent invalid. It must be understood that the Protective Association had nothing whatever to do with the last suit wherein the Low bridge patent was sustained. The dentist sued was not only not a member, but was a relative of persons connected with the Crown Company, and we have reason to believe was paid to stand as a defendant.

"Backed by this decision, the Crown Company have again resumed active operations. They are demanding a royalty on every piece of bridge-work which has been done, and also a license fee of \$25 for each year of alleged infringement of their patents. Thus far their operations have been confined to two or three States, but every one in the Union will be visited within the next few months, and all dentists called upon to settle. We could cite many instances, but when we state that the Crown Company have placed custodians in several dentists' offices in Boston, and that they have brought suits against these men, the gravity of the situation is apparent. We do not doubt that several million dollars will be extorted from those who are not members of the association. The Crown Company have nearly five years more in which to collect royalty for past infringement, and furthermore own patents on other operations on which they expect to realize in the future, so the dentists are sure to be harassed for some time.

"The form which this struggle is now assuming will be much more troublesome, and will involve even more time, energy and responsibility on our part than did the former litigation. If it were not for the fact that there is no one sufficiently well versed in the matter to carry on the work, we should certainly not take on the enormous burden again. It was necessary this week for the writer to put up his own private securities to obtain a bond for \$45,000, so that the custodians could be removed from the dentists' offices in Boston. We can ill afford to sacrifice the time and energy necessary, as our private practice is our means of support. Any thinking person can see that if we were in this work for what we could make out of it, it would be much more profitable for us to throw our influence on the side of those who are mulcting the dentists.

"We now desire to state the exact position of the Protective Association towards the International Tooth Crown Company and towards every dentist in the United States, so that hereafter there can be no misunderstanding.

"First, the association will assume the defence of every suit brought by the Crown Company against any member of the association who has paid \$20, which is the membership fee and assessment. Second, the association will defend any dentist who is accepted as a member before December 1st, 1899. Third, the association will not defend, nor give any aid in defending, any

suit brought against a dentist not a member, nor against a dentist who waits until he is sued before he joins, nor against any member of the Protective Association who does not pay his assessment.

"Knowing the defence we can make we do not believe the Crown Company will press suits against members of the association. As the matter now stands the members and ourselves are being put to much trouble because the Crown Company do not know who do and who do not belong to the association, and through misapprehension of this fact some members even have been sued. We shall, therefore, publish by States a list giving full names and addresses of all members not in arrears, and we firmly believe that thereafter the demands and suits of the Crown Company will be made and brought against only those dentists whose names are not on this list, and whom the Crown Company will then know to be neither aided nor protected by the association.

"There is not the slightest doubt of the ability of the association to protect every one of its members. We have never been defeated, but for the past eleven years have won every suit brought in every State, and also in the Supreme Court of the United States. We speak advisedly when we state that every practitioner who unites with this organization will be taken care of and be protected against any claim for royalty."

Simple justice to Dr. Crouse demands the statement that the inestimable service he has rendered to the dental profession is fully appreciated by an overwhelming majority of its members. No man can claim for himself entire immunity from errors of judgment, but the absolute integrity of his management of the affairs of the association is unquestioned. Committees composed of representative members of the profession, in whom the association places implicit confidence, have annually made examination of its books and accounts, and reported them correct in every particular.

From Dr. Crouse's statement above quoted it will be seen that as regards the claims of the International Tooth Crown Company the Dental Protective Association is still a power to be reckoned with. What is needed at the present juncture is a largely increased membership and the prompt payment of dues by those already members.

Those disposed to avail themselves of this agency for defence against the demands of the International Tooth Crown

Company are advised that Dr. J. N. Crouse, of 2231 Prairie avenue, Chicago, Ill., is Chairman of the Dental Protective Association, and that communications regarding membership addressed to him will receive prompt consideration.

Elsewhere in this issue of the BRIEF is reproduced an editorial article from the August number of the *American Journal of Dental Science*, which furnishes an interesting synopsis of the history of crown- and bridge-work litigation, and of the present status of the controversy.

PROFESSOR ALTON H. THOMPSON.

This distinguished teacher, so well known through his many scholarly contributions to dental literature, has left the effete West and come East to grow up with the country. With the present session he entered upon his duties as Professor of Dental Pathology, Therapeutics and Comparative Dental Anatomy in the Philadelphia Dental College. That institution is to be congratulated upon so valuable an accession to its teaching force. Philadelphia, too, has cause for self-gratulation upon the admission to her citizenship of one whose professional acquirements and literary ability are of so high an order, and whose personal qualities are so worthy of esteem.

ANNOUNCEMENTS.

PENNSYLVANIA BOARD OF DENTAL EXAMINERS.

The Pennsylvania Board of Dental Examiners will conduct examinations simultaneously in Philadelphia and Pittsburg December 18th, 19th and 20th. Application for examination must be made to Hon. James W. Latta, Secretary of the Dental Council, Harrisburg, Pa.

G. W. Klump, Secretary, Williamsport, Pa.

MASSACHUSETTS BOARD OF REGISTRATION IN
DENTISTRY.

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston, Monday, November 13th, 1899, at 9.30 A. M., at Harvard Dental Infirmary, North Grove street.

Examination in operative dentistry at 10.30 o'clock.

Each candidate must come prepared with rubber-dam, gold and instruments to demonstrate his skill in operative dentistry. Any one who wishes may bring his patient. So far as possible patients will be furnished.

The theoretic examination will include operative dentistry, prosthetic dentistry, crown- and bridge-work, orthodontia, anatomy, histology, surgery, pathology, materia medica, therapeutics, physiology and anæsthesia, and will be held at Civil Service Rooms, State House, commencing Tuesday, November 14th, at 9.30 o'clock.

All applications, together with the fee of twenty dollars, must be filed with the Secretary of the Board on or before November 6th, as no application for this meeting will be received after that date.

Candidates who have taken an examination and desire to come before the board again at this meeting must notify the secretary as above in order to be registered.

*G. E. Mitchell, D.D.S., Secretary,
25 Merrimack St., Haverhill, Mass.*

MARYLAND STATE DENTAL ASSOCIATION.

The following officers were elected July 27th, 1899: E. E. Cruzen, D.D.S., President, 1213 Madison avenue; G. Marshall Smith, D.D.S., First Vice-President; J. K. Burgess, D.D.S., Second Vice-President; Richard Grady, M.D., D.D.S., Recording Secretary, 720 North Howard street; George R. Carter, D.D.S., 926 Madison avenue, Corresponding Secretary; S. C. Pennington Treasurer; Executive Committee, B. Holly Smith, M.D., D.D.S., Chairman, 1007 Madison avenue; C. M. Gingrich, D.D.S.; W. W. Dunbracco D.D.S.

CORRESPONDENCE.

ZEROSTOMIA (DRY MOUTH).

EDITOR DENTAL BRIEF:—The case of "Zerostomia," or "Dry Mouth," referred to on page 612 of the DENTAL BRIEF, calls to mind a case that came under my notice about fourteen months ago.

The patient was a Jewess, about fifty-five or fifty-six years of age, rather stout and apparently in the enjoyment of excellent health. She came to consult me in regard to her mouth, saying that she had suffered for several months from a lack of moisture in the mouth. She stated that she had consulted several physicians, but had obtained no relief. She said that all her teeth had been extracted fifteen years before, but that she had always been told that she could not wear artificial teeth on account of the unfavorable shape of her mouth, and hence had never worn any.

I found the mouth very dry, and it seemed to be very distressing. The only moisture that I could discover was a small amount that oozed at long intervals from the mouth of the left Steno's duct. It was the first case of the kind that had ever come under my observation, and I did not understand the case, nor did I know what treatment to employ; but as she stated that she obtained most relief from chewing gum, I jump at the conclusion that a set of teeth might be tried, with the hope of giving some relief. Upon my suggesting a set of teeth as a means of relief, she desired to know whether I would insure the work to be a success, and upon my replying in the negative, she said she could not afford to take any chance in the case. I then proposed to take her impression and make her an upper plate of vulcanite without teeth and let her try it, to which she consented. I made the plate and delivered it to her just on the eve of my going to Portland to the Dental Congress, so that I did not see her again for two weeks. When she returned she stated that she had no difficulty in wearing it, and that while she kept it in her mouth she was relieved from the distressing condition. She then consented to my making full upper and lower dentures, which she has worn about thirteen months.

She was in my office about ten days ago, and informed me that the wearing of the dentures gives complete relief, but that the trouble returns when she lays the teeth aside; so the abnormal condition has not been cured, but the presence of the teeth

simply palliates the trouble. I found both dentures completely covered with tartar.

A. N. Dick, Woodland, Cal.

RECENT PATENTS RELATING TO DENTISTRY.

628524, Dental plugger, Henry Case and E. D. Shaw, Gloversville, N. Y.

628467, Dentist's or jeweler's drawer and tray, Thomas C. Howlcroft, Uttoxeter, England.

628484, Device for administering anæsthetics, Richard E. Mercer, Detroit, Mich.

628487, Attachment for dental dams Martin C. Nelson, Natick, Mass.

628489, Local anæsthetic, Gustave Pertach, Lyons, France.

628923, Rubber-dam holder, John P. Carmichael, Milwaukee, Wis., assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

628933, Mercury holder, Edmund D. Gilbert, assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

629031, Sterilizing spittoon, Andre Guasco, Paris, France.

629321, Barber's or dentist's chair, Hugh R. Kuersten Chicago, Ill.

628947, Speed regulator, Guido B. Lob, Chicago, Ill., assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

629324, Dental dam, Charles C. Allen, Kansas City, Mo.

629621, Dental plugger, George B. Snow, Buffalo, N. Y.

629531, Dental articulator, George B. Snow and A. D. Gritman, Buffalo, N. Y.

630650, Vulcanizer, Seth A. Brown, assignor to Buffalo Dental Manufacturing Co., Buffalo, N. Y.

633071, Artificial tooth, John S. Campbell, Paris, France, assignor to Dentinax (Holdfast Tooth) Company, Limited, London, England.

632843, Dental forceps, Nicholas B. McGhee, assignor of one-half to M. Lash, Orange, Cal.

633125, Dental cuspidor, George P. Davis, assignor of one-half to T. D. Wilson and E. J. Cousins, Toronto, Canada.

633128, Artificial tooth, Friedrich Ernet, Hamburg, Germany.

631429, Artificial tooth, James Neil, Jr., assignor of one-third to J. Neil, New York, N. Y.

631228, Disinfecting, Robert H. Reeves, London, England.

632524, Tooth brush, Ada V. Goltermann, East Orange, N. J.

31494, Design, dental elevator, Xaver Dodel, San Francisco, Cal.

633390, Automatic disinfecter, John W. Schell, Philadelphia, Pa.

633222, Method of and apparatus for casting dental aluminum plates, Willard Streetman, Olenburne, Texas.

633859, Blowpipe, Theodore G. Lewis, assignor to Buffalo Dental Manufacturing Company, Buffalo, N. Y.

634083, Headrest, Aaron P. Gould, Canton, Ohio.

634084, Dental chair, Aaron P. Gould, Canton, Ohio.

634638, Attachment for dental mirrors, Walter I. Brigham, South Framingham, Mass.

634731, Tooth clamp, James W. Ivory, Philadelphia, Pa.

634732, Fastener for dental instruments, James W. Ivory, Philadelphia, Pa.

634689, Machine for making tooth picks, Edward M. Lamb and E. Bales, Adrian, Mich.

TRADE-MARKS.

33211, Tooth powder, O'Rourke & Hurley, Little Falls, N. Y.

33356, Dentifrices, Charles A. Kirkwood, Chicago, Ill.

33393, Tooth-powder, Benjamin H. Codman, Boston, Mass.

LABELS.

7118, "Kreso-Naphthol," for a disinfectant, Eugene S. Latta, Cleveland, Ohio.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Questions and Answers.*

Question 58. What do you know about the merits of Solila gold? I have been using it for some time, and thought at first that it was admirable in every respect. Recently several things have happened to me in the use of it that somewhat caused me to lose confidence in it. I would like your opinion, as well as the opinion of some of the fraternity who have been using it.

W. H. Moseley, South Boston, Va.

The editor has had but little experience in the use of this gold, preferring to use in most instances foil or cylinders. Those who use it appear to have nothing but praise for its working and lasting qualities. Probably the trouble is your own, as you confess that "several things have happened to me in the use of it." The manufacturers of the gold claim as one of the essentials to success special instruments. Are you thus equipped?

Question 59. Can you suggest some simple method of improving an acid pan?

Such an appliance may be quickly and successfully constructed from a piece of sheet lead. Take a piece of the size desired, and about one-sixteenth of an inch thick; this by the use of the large end of a horn mallet may soon be transferred into a shallow dish, or it may be bent into shape over the same convex object. This metal has one advantage over the dishes made of copper—they are not inclined to suffer from the contact of the acid bath.

Question 60. What are the laws regulating the practice of dentistry in France, and how profitable do you think it would be for an American dentist to establish an office in Paris during the coming exposition?

G. W. W., Brucham, Texas.

The laws regulating the practice of dentistry in France are very similar to those which exist in this country, and in most instances are more rigidly enforced. As to the advisability of opening an office in Paris during the Exposition little can be said. The chances are there will be less demand for dental services during the progress of the fair than at a time when the city is in its normal activity. Visitors who are compelled to

*Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

seek the services of a dentist under such circumstances, usually request such operations as will afford them temporary relief, and no more, which, as you know, are not "profitable." Again, the growth of a dental practice at best is slow, unless the dentist himself has some special fitness or personal charm to make it otherwise.—EDITOR.

Question 61. What is the cause of gold fillings turning dark? Not the body of the filling, nor within the cavity, but a decided discoloration upon its surface which, in most cases, is readily polished off. Can some one suggest a treatment to prevent such action?

B. S. Dudley, Grenada, Miss.

Question 62. I have tried several methods of capping exposed or nearly exposed pulps, but have met with little or no success. Can some one suggest a reliable method?

In reply to the inquiry regarding a reliable method for capping pulps I desire to offer the following, which in my hands has proven successful in most instances. Adjust the rubber-dam and thoroughly cleanse the cavity; sterilize with carbolic acid; assist its penetration by the use of the hot air syringe. Next prepare a small quantity of some reliable non-irritating pulp capping by mixing it with oil of cassia and apply it directly over the pulp, after which the floor of the cavity should be flooded with chloro-percha, and over this place oxyphosphate cement and allow it to thoroughly harden. After a few days a permanent metal filling may be inserted, and the tooth will be found to be unaffected by thermal changes.

Luella Cool, San Francisco.

Question 63. Which is the strongest, a porcelain crown or a porcelain faced crown for a very short bicuspid?

W. S. Payson, Castine, Maine.

Question 64. What is the best way to tell when you have a correct bite for a denture? I find a great deal of trouble in keeping patients from closing their jaws in very many different ways. I find this detail especially difficult in making entire dentures.

F. C. Williams, Savannah, Tenn.

I have the following to offer in reply to Dr. F. C. Williams: To ascertain a correct bite adjust the base-plates with wax contour guides in the mouth. With the body erect and head thrown back so as to make the muscles of the throat tense, instruct the patient to swallow and hold the jaws firmly together. While in

this position draw the median line across both wax rims, also several oblique lines upon either side. Again direct the patient to repeat the act several times, noting that these lines are brought accurately together. While conversing with the patient, observe the relative position of the jaws, and avoid the common mistake of impressing upon the patient the importance of this stage of the operation. Tact is sometimes better than rules, but in spite of every effort errors will sometimes occur.

J. Clarence Salvas, Philadelphia.

That portion of the answer given to Dr. Williams' question by Dr. Salvas, which refers to the impression made upon the patient by calling attention to the importance of closing the jaws naturally, is the principal factor in bringing about an imperfect result. While the movements of the mandible are practically under the control of the will, the normal action of opening and closing the jaw takes place in most instances as an involuntary act, and it should be so operated at the time of securing an occlusion in prosthesis.

EDITOR.

I note in the DENTAL BRIEF for July the question "At what age should regulating be undertaken with a child?" and while the question is rather indefinite in character, some of the answers given appear to be even more so. The first reply is one which seems to consider the subject of anchorage for the necessary appliance the all-important feature. While this detail is one to be considered, it certainly is of minor importance, and can in no way denote the time at which such work could be undertaken. The writer has in very many instances made attachments to deciduous molars for the purpose of correcting some minor deflection of the permanent incisors, yet when deductions are drawn from the answer given by Dr. Eglin, one would suppose that it was always necessary to await the eruption of the posterior permanent teeth before beginning the operation. I am aware of the fact that the practice to which I have referred would be generally condemned, but it presents many advantages, chief among which is the comparative ease with which the teeth may be moved about, and with a little care retained in their normal position. This method of early regulation in the incisors also greatly favors the advent of succedaneous teeth. Let us presume the permanent incisors erupted, but so widely separated that the four occupy the space finally to be taken up by the six

anterior teeth; is it not better to gently draw the incisors together at a comparatively early period rather than await the approach of the cuspids with the hope that they may force them into position? Again, take the bicuspid, if they occupy a position which interferes with the progress of the cuspids, is it not the better plan to presuppose this, and by some simple method draw them backward at a time prior to the approach of the permanent cuspids? I, therefore, consider the question one that could be dealt with only in its broadest sense, and would supplement the answers already given by saying any time between the ninth and eighteenth years.

J. H. G., Philadelphia.

In reply to Question 54 in October DENTAL BRIEF, asking to what extent teeth filled with porcelain are affected with thermal changes, it might be stated that inasmuch as porcelain is one of the poorest conductors of heat and cold known, and that oxyphosphate of zinc is equally poor, we therefore in the use of an inlay afford a double protection to hypersensitive dentin, and it is just in such cases that porcelain inlays are indicated. Difficulty is sometimes experienced in removing the platinum foil from the filling, especially when the matrix has been punctured, and a portion of the porcelain has found its way through the aperture. Under ordinary circumstances, where the matrix is perfect, little or no difficulty is experienced in removing it from the fused porcelain, but where the metal adheres it may be readily picked off by the sharp point of an instrument.

Joseph Head, D.D.S., Philadelphia.

In reply to Dr. Hoagland, Question No. 53, there could be no relationship existing between the conditions named and the agent employed as a root filling. The loss of vitality in the tooth might have been partially responsible for the loss of gum tissue, or it may have been occasioned by any one of the many conditions which bring about such a disturbance, and which are too varied to be described in this department.



Practical Points.*

To Remove Gutta-Percha Points from Root-Canals.—Roughen the point of an Evans' root-canal dryer, heat the bulb, and press the point slowly into the canal. Cool the bulb with a wet sponge, and on removing the point the gutta-percha will come with it.

Indiana Dental Journal.

A Good Gold Solder.—One part of S. S. White's No. 9 18-carat solder and four parts of a gold coin of 21.6 carats fine (American, German or French currency), to be melted together. The result is a good solder of 21 carats, the same color as the gold coin.

Zeit. f. Ang. Micros.

Gomphiasis.—Gomphiasis is the correct form of speaking of the disease of the teeth when they loosen in their sockets, and unless treated, finally fall out, a condition frequently met with in practice. Why is not the term used in our text-books with such terms as necrosis, exostosis, etc.?

W. S. Cottrill, Dental Cosmos.

To Remove Difficult Plaster Impressions from the Mouth.—Dr. Angle's method. Slightly oil the impression cup before pouring the plaster. When set hard, slip the cup off, and with a pointed spatula or knife cut grooves in the plaster, not quite cutting through. Following the grooves first break away the anterior piece, then the lateral pieces. The remaining piece covering the roof of the mouth may then be readily worked loose. The four pieces are readily united again.

Geo. D. Setherwood, Ill. S. Den. Society.

Electrolysis in Chronic Pericementitis.—To a saturated solution of potassium iodid add about one-fifth the quantity of equal parts tincture of iodine and aconit. Saturate a pledget of cotton with this, and apply by means of the rubber-cup electrode to the inflamed region. About one milliamperere of a ten-cell current for five minutes will be sufficient, and usually one application is all that is required.

J. M. Fogg, Dental Cosmos.

"Tic Mixture."—

R. Tinct. gelsemii	3ii.
Tinct. lavandular co.....	3iii.
Spt. chloroformi	3iv.
Aq. add	3vi.

S.—One tablespoonful to be taken three times a day.

This will often afford relief in cases of neuralgia of the fifth nerve.

D. L. Rogers, Dental Record.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Tincture of Iodin Stains.—To remove stains of tincture of iodine from articles of clothing, napkins, etc., the hyposulphite of soda acts beautifully. *Medical World.*

Alveolar Hemorrhage.—Roll a pellet of cotton the size and shape of the socket and saturate the end with nutgalls. Force up into the socket, following with other pellets, until the outer margin of the gum is reached; then place a pellet the size of a walnut to antagonize the opposing teeth, and bandage the head, holding the jaws firmly together.

H. H. Benjamin, Items of Interest.

Formol for Surgical Antisepsis.—The disagreeable odor of formol is disguised if prepared as follows:

R. Alco. sol. formol 40%	25 grams.
Tinct. Eucalyptus	5 "
Ethyl Alcohol, q. s. to make.....	200 c.c.

Each teaspoonful contains 25 centigrams of formic alcohol.

Add one to four teaspoonfuls to a liter of water.

Semaine Medicale.

Sensitive Dentin.—We have one reliable standby—good sharp instruments and careful manipulation. Whatever bur is used should be selected with as little frictional surface as possible. A wheel bur will cut as much, with less pain, as a round bur, but a few sizes of round burs will answer the purpose, run at proper speed. I believe the only reliable thing for the use of the general practitioner is good sharp instruments, a steady hand and a little bit of sensible talk to the patient, if nervous.

F. T. Van Woert, Cosmos.

Osmic Acid in the Treatment of Neuralgia.—The injection of osmic acid has lately been much recommended. A case is cited (Medical Society of London) which had resisted all treatment for two years. The pain involved the infra-orbital nerve, but had extended to other branches of the fifth nerve. A 1 per cent. aqueous solution of osmic acid was injected into the infra-orbital nerve by means of an ordinary hypodermic syringe inserted in the orbital canal. Considerable pain and tenderness resulted, which gradually passed away, since which the patient has been quite free from pain. It is supposed that the nerve-fibres were destroyed by the acid.

D. L. Rogers, Dental Record.

The Jenkins' Inlay System.—Dr. Jenkins has given us the ability, by using thin gold, to make a matrix of the cavity, which is practically perfect, an enamel that has excellent color and that flows in the matrix without destroying it, and which by repeated fusing can be made to fit the matrix perfectly. In a platinum matrix the bodies adhere to the platinum, but the gold matrix is readily removed. You cannot do this with a high fusing body, because the gold melts before the body is biscuited, nor with other low fusing bodies, because when they are done they do not look like anything that was ever in the human mouth.

Dr. Briggs, International Dental Journal.

Aluminum Crowns.—I make aluminum crowns in one solid piece, with a "Morrison outfit." They do not corrode, give entire satisfaction, and for cheap, quick work are unexcelled.

P. A. Skeen, Dental Cosmos.

Restoration of Contour.—No service that I have ever performed for patients has been recompensed by such gratitude as the remedying of the evil effects of separation, thus making the patient comfortable, and in some cases restoring lost health that was apparently due entirely to lack of means of masticating the food.

J. N. Crouse, Nat. Den. Ass'n, Niagara Falls, 1899.

Filling Materials for Deciduous Teeth.—For the temporary molars the first material in importance and value is amalgam. Cement is the best preserver of tooth-substance so long as it escapes the wear of mastication and the solvent power of the oral fluids. It closes the tubuli and prevents exudation of fluids about the filling, which, by decomposition, lead to caries about other materials.

A. H. Thompson, Dental Cosmos.

Painful Dentition.—Relief may be given by frequently washing out the mouth and rubbing the gums with the following preparation, which has proven very beneficial:

R. Eucaïn hydrochlorate.....	2 grs.
Chloroform	15 min.
Glycerin	6 drams.
Extract rosæ.....	5 drops.

Report of Committee on Materia Med.

New Jersey S. D. Soc., Items of Interest.

Removal of Amalgam Fillings.—Apply a thermo-cautery point to the surface of the filling. When globules of mercury appear on the surface of the filling, force the point further into the filling, which will be softened in a few seconds. The amalgam can then be readily removed with an excavator. If the filling is very large it may be necessary to make several points of attack. If there is an adjacent filling, which it is desired to preserve, a non-conductor should be inserted between the teeth—a piece of visiting card will be found sufficient. Saves time and labor to the operator and suffering of the patient.

H. Rodier, Revue de Stomatologie.

Filling Materials for Children's Teeth.—Oxyphosphate of zinc and gutta-percha. Why? Because they possess more of the requisite qualities; easily and quickly inserted; a good non-conductor; adhesive, and both retain their color. Oxyphosphate resists friction better than gutta-percha; gutta-percha is not so readily dissolved as oxyphosphate. By the use of these materials we can easily preserve the permanent teeth till they become dense and the child beyond the danger of infectious diseases. The age for permanent fillings depends upon the condition of the teeth and the general health and development of the child.

R. E. Sparks, Dental Cosmos.

Checking Alveolar Hemorrhage.—I have been successful in the arrest of alveolar hemorrhage by the internal administration of tannic acid. Five grains of tannic acid are dissolved in as much glycerin as will take up this quantity; then one-fourth of a tumbler of water is added. Two tablespoonfuls of this are to be taken every half hour until three doses are consumed. This has proved very efficacious with me when the bleeding was very profuse and had continued for several hours.

Chas. P. Chupein, Items of Interest.

Systemic Treatment in Overcoming Dread of Dental Operations.—Asafoetida has a decided stimulating effect upon the nervous system and produces a kind of pleasant intoxication, which removes fear and overcomes nervousness. Good results follow the administration of two 3-grain asafoetida pills; the first one hour, and the other a half-hour before the time approaches for operation. It supports the patient's system, and causes more ready submission to the operation.

Leo Greenbaum, International Dental Journal.

Osmic Acid in the Treatment of Neuralgia.—Scharpin has given the results of his investigation of the treatment of trigeminal neuralgia by Neuber's method—the injection of a solution of osmic acid. In eight cases under observation, five were completely cured, two were greatly relieved, the cases having been under subsequent observation for from two to six months. The addition of glycerin to the aqueous solution (10 per cent.) prevents decomposition.

Journal de Med. de Paris.

Combination Filling, Alloy Fillings and Oxyphosphate.—(1) With the average oxyphosphate powder mix thoroughly an equal part of fine-cut alloy fillings, and prepare as usual by mixing with phosphoric acid. After inserting, continue pressure until crystallization is well advanced. Resists attrition, and there is never any discoloration. The lasting qualities are much improved by the combination.

C. B. Parker.

(2) There is a chemical affinity between the phosphoric acid and the metal, therefore I generally mix them together, and then stir in the powder until I get the proper consistence.

J. Bond Littig, International Dental Journal.

Care of Gold Foil in Pellets.—In the same drawer with the open box or bottle containing the pellets, place a small porcelain receptacle containing a pledget of cotton saturated with aqua ammonia. The escaping gas will render the pellets uniformly soft, velvety and manageable, and absolutely non-cohesive. When about to use, transfer the pellets to the Custer annealer, and turn on the current; the result will be a series of pellets, each in its behavior peculiarly like its fellows, and capable of perfect cohesion and density under the impact of the plugger.

C. N. Johnson, Dental Cosmos.

Miscellany.

Tooth in Nasal Cavity.—Tyler, in *Southern California Practitioner*, reports a case in which a tooth was extracted from the nasal septum, the root going downward, but not penetrating the roof of the mouth. It extended horizontally, directly across the nasal cavity, with its crown imbedded in the inferior turbinated bone.

Formaldehyde Tannin-Albuminate.—By the action of formaldehyde on tannin-albumin a compound is formed which is insoluble in the acid gastric secretion, and which is only decomposed in the alkaline intestines, so that the effect of both the astringent and disinfecting constituents are exercised *in situ*. The compound, which is stated to be very efficacious in the treatment of disorders of the intestines, is the subject of a patent.

Pharm. Centralh.

Death under Chloroform; its Comparative Rarity in India.—J. Harris (*Indian Medical Record*, May 19th, 1899), in testing an apparatus for the painless death of lower animals, which had been taken out to India from England and found not to work, found that the reason was that the high temperature in that country prevented the concentration of the chloroform vapor and consequently its lethal effect upon the animals. By placing ice in the chambers the animals were readily killed. The author relates this fact as showing that the safety of chloroform as an anæsthetic depends upon its dilution, and that that is produced in India by the high temperatures present there, and that in consequence safety devices for its employment are unnecessary. Difference in climate is, then, a factor that must always be counted on in chloroform anæsthesia.

Oleum Aethereum is a very complex substance, about whose composition there is but little more known now than there was fifty years ago, and about which recent chemical literature maintains a discreet reticence. The article met with in the shops under this name is indefinite in strength, and is usually obtained from the retort residue after ether has been made, by heating to 171.6 degrees C., and separating the yellow oily layer from the distillate, subsequently shaking with an aqueous solution of sodium carbonate, to remove sulphurous acid. The specimen shown was made in this way, and was denser than water, hence the name "heavy oil of wine." This density increases on exposure to the air. If warmed with water, separation ensues, and other hydro-carbons lighter than water rise to the surface, which are termed "light oil of wine." The superiority of the present "spiritus etheris compositus," owing to the exact directions given in the Pharmacopœia for its preparation, is manifest when it is compared with the indefinite product of the 1885 B. P. and with that made by dissolving the equally indefinite oleum æthereum in spirit.

Pharmaceutical Journal.

Foreign Bodies in Esophagus.—If a fish bone or any foreign object has been swallowed, it can be safely and easily extracted, according to a communication in the *Journal d'Hygiene* of June 29th, by swallowing some thread snarled into a tangle, keeping hold of one end of the thread. When it has been swallowed, pulling it out by the end held will bring the foreign article with it.

Phenalgin is ammonium phenyl-acetamide. It forms a fine white powder of pungent odor, with very slight taste, and is insoluble in water. It is prescribed for neuralgia or rheumatic pains in doses of 40 to 75 centigrams, in powder, tablets or capsules. Phenalgin possesses hypnotic and anodyn properties, and is said to be available as a substitute for opium. It is also antipyretic, as would be expected from its chemical constitution.

Klin. Ther. Wochenschr.

The Electric Current an Antidote against Stings of Insects.—According to Dr. Friedlander, of Wiesbaden, the application of a constant current, applying the negative cathode on the spot stung, promptly relieves the pain, and, if applied at once, prevents swelling. Even if not applied until after some time has elapsed the pain is as promptly relieved and the swelling quickly reduced, the poison which the insect has injected being apparently neutralized and rendered innocuous.

Lithemia.—Dr. B. C. Loveland, of Clifton Spring, makes the assertion that lithemia is responsible for nearly half the functional troubles afflicting humanity, as well as for a large proportion of more serious diseases. He divides lithemics into two classes, *i. e.*, (1) the plethoric or over-nourished; and (2) the asthenic or poorly nourished. The plethoric lithemic is usually of robust habit, with a stout and ruddy appearance. He usually excretes less than three pints of urine daily, having a rather high specific gravity and color. As the finger nails are far from the center of circulation, it is well to look here for earthly deposits, and note their smoothness and brittleness. These individuals require more exercise and more water; they should take less albuminous food, and cereals, vegetables or fruit causing indigestion should be excluded. The asthenic lithemic is the reverse of the other in his physical make-up, and the most common manifestation of his disease is rheumatic gout, together with muscular rheumatism and neuralgia, and sometimes neurasthenia. The urine is much the same as in the other type, but the blood is poorer in hemoglobin. These persons must be made to drink water freely, and should also take small doses of salicylate or benzoate of soda in hot water. Bread, potatoes and starchy foods generally should be taken sparingly, and all sweets and all very sour fruits or vegetables avoided. Outdoor exercise, cool bathing and freedom from nervous strain are important adjuvants.—*Phila. Med. Jour.*

Koplik's Spots in Prague.—Dr. Ludwig Knospel, the assistant of Professor Ganghofner in the clinic for children's diseases at the German University of Prague, has followed carefully all the numerous cases of measles that came to the clinic, and has found Koplik's spots of the greatest value for the early diagnosis of the disease. He reports that he has noticed the red spots with bluish-white punctations on the mucous membrane of the cheeks and lips from three to five days before the appearance of the usual eruptions of measles.

Schmidt's Jahrbücher for June, from Prager Med. Woch.

Sanatorium and Sanitarium.—Some uncertainty apparently exists as to the use and significance of these two words. A "sanatorium" is a place to which the sick go to get well. The word is derived from the Latin, *sanare*, to heal. "Sanitarium" is derived from the Latin, *sanitas*, health, and is considered by lexicographers an improper form for "sanatorium." There is no sound reason in having two words so nearly alike to convey the same idea particularly when one exists without the sanction of authority. There is, therefore, good ground for preferring the word "sanatorium" to its counterfeit "sanitarium."

Jour. Amer. Med. Ass'n.

The enamel of cooking utensils has been the subject of investigation by M. L. Barthe in consequence of a case of poisoning at Bordeaux, which resulted in the death of one person and the serious illness of several others. The poisoning, however, appeared to have been due to a ptomaine. He found little information on the subject in technical works, but according to a paper by A. Granger, the enamels consist of complex silicates, or borates, in combination with potash, soda, lime, or oxid of lead. Binoxid of tin is employed to make the enamel opaque, also arsenious anhydride, phosphate of lime, and high proportions of alumina. An analysis by O. Emmerling of an enamel intended for domestic utensils showed that it contained 52.51 per cent. of oxid of lead and 3.74 per cent. of arsenic acid. M. Barthe personally examined the enamels from four saucepans, which he found to be similar in composition, and to consist of silica, tin and alumina, with small proportions of zinc, lime and potash, and traces of iron and cobalt. A trace of manganese was found in one case. Lead, boric oxid and arsenic were entirely absent. These enamels were fusible with great difficulty; but, according to the *British Food Journal*, there is no doubt that many others are used which are easily fusible, and which contain oxid of lead and other dangerous ingredients. Dr. G. Ambühl, official analyst for the canton of St. Gall, Switzerland, states in a recent report that a preparation used by a local enameLER contained 35 per cent. of oxid of lead, and it is thought that similar facts would be revealed if the matter were looked into in this country.

Furunculus.—Stoner believes that furuncles are always caused by infection from the surface, usually along the hair-follicles. In order to prevent general furunculosis, he, therefore, suggests washing the surface of the boil with a 1 to 500 solution of mercuric chloride, extending the washing for some distance around the primary abscess. The application should be made at least twice daily, and after rupture or incision, the abscess cavity should be carefully irrigated with a weak mercuric chloride solution. This treatment is as effective as the injection of carbolic acid into the substance of the boil. The term furunculosis is objected to, because the condition is not a constitutional disease. Infection is usually carried by the flowing discharge or by the infected hands.—*Phila. Med. Jour.*

A Novel Meat Preservative has been examined by A. C. Chapman. It was a colorless antiseptic solution having a mixed odor of sulphurous and benzoic acids. A qualitative analysis revealed the presence of aluminium sulphate, sodium chlorid, sodium nitrate, sulphurous acid, chloral hydrate, benzoic acid, and a small quantity of iodine, apparently existing as hydriodic acid. The alum was evidently intended to exert its astringent effect upon the fibre of the meat, whilst the remaining constituents, with the exception perhaps of the chloral, were used for their well-known preservative and antiseptic properties. The chloral and the benzoic acid would doubtless be volatilized during the process of cooking, which probably suggested the use of benzoic instead of salicylic acid. *British Food Journal.*

Alcoholism in France.—Some interesting facts relating to the consumption of alcohol and bearing upon the relation between alcoholism and crime have recently emanated from Paris. According to the investigations of a French physician it appears that 2,000,000 hectoliters of 100 hydrometer degree pure alcohol are consumed annually in France, or the equivalent of 5,000,000 hectoliters of 40 hydrometer degree ordinary alcohol. In 1850 it was estimated that the consumption of pure alcohol in France equalled $1\frac{1}{2}$ liters per head of the population; in 1896 it had increased to 4.19 liters, apart from the use of wines, beers, and cider. Inclusion of this last increment would raise the per capita amount to 14 liters of 100 hydrometer degree alcohol, as compared with 10.5 liters in Belgium, 10 liters in Germany, and 5 liters in Sweden. A corresponding increase in the number of drink places in France has taken place—from 280,000 in 1850 to 500,000 in 1896, or one for every 30 adults of the population. In Sweden the annual consumption of alcohol between the years 1830 and 1834 equalled 23 liters per head, and the number of murders committed, 59; while during the three-years from 1875 to 1878 the annual consumption of alcohol was only 5 liters per head, and the number of murders only 18.—*Phila. Med. Jour.*

Were the Ancient Egyptians Cannibals?—It would appear that archæological discovery has demonstrated that the ancient Egyptians, 3000 to 3500 B. C., were cannibals. Prof. W. Flinders Petrie, an Egyptologist and excavator of fame, has successfully brought to light this fact. In the recent unearthing there were found piles of ribs and flesh-scraped bones, showing where human teeth gnawed them. Professor Petrie found these evidences while excavating a group of old Mastaba tombs of 3500 B. C., in a cemetery near the village of Deshashab, some sixty miles south of Cairo. Professor Petrie, from extended investigation, concludes that the source of Egyptian cannibalism can be traced, and is probably due to the Libyans, who invaded and occupied Upper Egypt about 3000 to 3200 B. C. They habitually cut off the head and mutilated other parts of the body, and ate the same before burial.

Spitting on the Floor of Public Conveyances.—The recent propaganda of ideas as to the prophylaxis of tuberculosis has led to a somewhat better enforcement on the part of street car employes of the rules as to spitting on the floors of street cars. The notice posted conspicuously in the electric cars of Scranton, Pa., commends itself by containing in condensed form the morally suasive motives that would prompt would-be violators to restrain themselves and repress their expectoration. It reads as follows: "Spitting on the floor of street cars and other public conveyances is strictly prohibited. By order of the Board of Health. Gentlemen will comply with this reasonable order, which is in the interest of public health. Conductors are instructed to eject from the car any person refusing to comply with this order."—*Med. News.*

Paregoric Tablets, put up in penny packets, marked "Confectionery, sold as herbal sweets," and retailed by confectioners, have been examined by the public analyst for Kensington. Regarding a sample of the tablets as a drug, it was found that it had been correctly described, and was accordingly reported as genuine, although had the sample been purchased and submitted for analysis as "sweets," and if the attention of the purchaser had not been drawn to the fact that it contained "paregoric," it would have been certified as adulterated, the presence of any appreciable quantity of morphine in an article sold as food unquestionably constituting adulteration within the meaning of the acts. The sample in question was found to be composed of sweetstuff into which paregoric had been introduced, but the sample was too small to admit of the determination of the percentage of morphine present, it being only possible to prove the presence of the alkaloid. In his report, the analyst remarks that the danger attending the unrestricted sale of a preparation of such a nature is too obvious to need comment. *British Food Journal.*

Caries of the Teeth and Diseases of the Stomach.—Aaron (*Charleston Med. Jour.*, October, 1898) states that caries is produced by the acid fermentation set up by microorganisms. Over twenty-two kinds of germs, concerned in caries, have been isolated. The empty stomach always contains germs, and, contrary to the general belief, the HCl of the gastric juice, while inhibiting up to a certain degree the process of fermentation, does not completely destroy the germs in the stomach. When caries exists some of the germs from the teeth may become incorporated with the food, enter the stomach and there develop, giving rise to various disturbances. The multiplication of the microorganisms and their products induce a state of hyperemia, and then a hypertrophic condition of the mucus membrane of the stomach, which becomes covered with a heavy, viscid, ropy, tenacious mucus. The food is not digested and acts as an irritant. The proteolytic process yields to fermentation. It must be remembered that not all microorganisms that excite inflammation are pyogenic. Germs which usually produce pus in interstitial tissue, developing on mucous membranes only produce a chronic inflammation.—*Internat. Med. Mag.*

A Powder-blower for the Stomach is described by Einhorn as follows: "It consists of an ordinary, not too flexible, rubber tube, 28½ inches long, the distal end of which connects by means of a hard rubber piece with an air-suction bulb, the proximate end of which is attached to a hard rubber piece. The latter is hollow and pierced with several small openings at the side for the passage of air and provided with a screw-thread for the capsule. The capsule has numerous holes, and is made in three different sizes. It is filled with the necessary quantity of powder by means of a very small spoon and then attached to the screw-thread." The stomach insufflation should be practiced when the patient is fasting, or, if the stomach at no time empties itself, after gastric lavage. The capsule is filled with the powder desired and screwed on to the apparatus. The tube is moistened with warm water and inserted into the stomach. The bulb is then compressed three or four times in quick succession. If there is much mucus in the pharynx and esophagus, to prevent its entrance into the holes of the capsule a thin cover of vaseline may be required. That the powder thus demonstrated covers the entire interior of the stomach has been demonstrated by the use of the X-ray. Bismuth powder thus introduced, not transmitting the rays of light, will give rise to a shadow on the screen. The indications for powdering the stomach are manifest. In gastric ulcer bismuth is useful, in gastric hemorrhage, antipyrine. In gastralgia, orthoform, and in erosion, protargol can be insufflated. Insufflation of the stomach with bismuth powder is also useful in X-ray examinations of this organ.—*New York Med. Jour.*

Hæmostatic Anaesthetic Solution.—A solution which combines the hæmostatic properties of gelatin with the anæsthetic action of cocain and eucain is prepared by A. Legrand as follows:

R. Pure gelatin	2 grams.
Pure sodium chlorid	70 centigrams.
Eucaine bene-hydrochlorid	30 "
Cocain hydrochlorid	70 "
Pure phenol	10 "
Distilled water to produce	100 c.c.

The preparation is poured while warm into sterilized tubes; when cold it sets to a jelly, which liquefies again at 20 to 25 degrees C., and may in this state be used for injection. It has been found to give excellent results in dental practice, producing good anæsthesia and preventing hemorrhage. *Nouv. Rem.*

Oxycamphor (oxyphor), an antidyspneic and sedative, has been under close observation lately by Alfred Ehrlich (*Centralblatt f. d. gesammte Therapie*, xxii, 1899). This body was introduced by Manasse and studied pharmacologically by Heinz, who found that it was a strong respiratory stimulant. It is a derivative of camphor, in which a hydrogen atom is replaced by an hydroxyl molecule. In commerce it appears as a white, crystalline, odorless and slightly bitter powder soluble 1-50 in cold water, more readily soluble in hot water and in alcohol. Under the influence of light and moisture the powder alters very materially and quite rapidly, becoming a soft, slimy, sticky, yellowish white mass, in which condition it is unfit for use. Experiments were instituted to find a means by which the drug could be given, and it was found that in tablet triturates with milk-sugar it kept fairly well; gelatin capsules filled with the drug kept very well, and a 50 per cent. tincture was also permanent.—*Phila. Med. Jour.*

Tuberculous Patients.—A most sensible warning has just been issued by the Government of Natal against the prevalent practice among English physicians of sending tuberculous patients in all stages of the disease out to South Africa, indiscriminately, often in almost destitute circumstances, apparently in the vague hope that the climate is a sort of specific, and will restore the strength so rapidly as to enable them to earn a living by out-door work. The report very properly points out that, as we have found out by bitter experience with this delusion in California and Colorado, consumptives in the third stage are really better off at home, that public hospitals are few and hard to get into, and that all the expenses of sickness are higher than in England, and the food and accommodations often most inadequate. Many a poor young fellow has been sent out to die in some rough, little frontier town, where it was impossible to secure proper accommodations, or even the ordinary comforts of civilized life.—*Med. News.*

Ligation of a Ruptured Mesenteric Artery.—One of the rarest lesions in a "buffer accident" is rupture of a branch of one of the mesenteric arteries. Such an accident occurred recently to a railway porter, who was found in a state of collapse. As the collapse seemed to diminish, operation was temporarily postponed, but later, as it was again increasing, it was decided to operate. The abdomen was opened, and it was found that one of the vasa intestini tenuis had been torn through about one inch from its origin. The distal end was bleeding freely, and both ends were tied. The peritoneal cavity contained much blood, and the collapse was so extreme that saline transfusion was resorted to during the operation. At the time of the report, ten days later, the patient had done well, and it was expected that he would recover.—*Lancet*.

Infiltration Anaesthesia.—Heinze (*Arch. für path. Anat. und Phys.*, 1898, Band cliii. Heft 3) has conducted a series of experiments that are of great value in determining the local anæsthetic power of various agents that are now in vogue for this form of anaesthesia.

The tests were not made upon animals or upon various individuals seen in the course of clinical work, but upon his own person.

The action of varying anæsthetic solutions he found to be due entirely to the amount of cocain they contained, and not to peculiar properties that have from time to time been attributed to the combined action of their other constituents.

His experiments further demonstrated that the action of eucain B and cocain were equal. One reason of this is that, as shown by Braun's researches, their osmotic tensions are about the same. The anæsthesia which they produce in 0.1 per cent. and still weaker solutions last about 15 minutes. The irritant action of eucain B is less even than that of cocain; 5 per cent. and 6 per cent. solutions were not as painful when injected as cocain solutions of the same strengths.

The eucain-B solution was found to be less toxic than cocain, and has the advantage of being capable of sterilization. He recommends its employment in place of cocain, and that it should be generally employed in infiltration anæsthesia in weak solution, as in the following formula:

R. Eucain-B	1½ grs.
Sodium chlorid	12 grs.
Distilled water	3¼ ozs.

Such a solution is capable of being sterilized at any time without interfering with its efficiency. It causes no swelling, and therefore does not injure the tissue or interfere with primary union. The eucain B is the only anæsthetic in the solution, the salt simply preventing irritation.

American Journal of Medical Sciences.

Mercury in Syphilis—Syphilitic Teeth.—Dr. L. Bolton Bangs (*Medical News*, April 1st, 1899) considers mercury not a specific for syphilis nor a direct antidote to its poison, but an excellent remedy for the symptoms. He states that the most necessary thing in the treatment of syphilis is to keep the patient at the very highest level of health. Patients must live carefully and hygienically. This is the first essential. Some recover from the disease without this hygienic care, but they are constantly running a great risk. At one time it was thought that potassium iodide was as valuable as mercury, but it is now known that mercury sets up a fatty degeneration of the morbid products of syphilitic processes, and thus leads to their absorption, while the iodides only increase absorption. Hence, potassium iodide is indicated only in nervous lesions where fatty degeneration is unusual and would be harmful in states in which absorption is disturbed. Other absorbent remedies are also good on this same principle, and their use should be recommended; hot baths, douches, massage, etc., all have a place in the treatment.

It must always be remembered, however, that it is patients with syphilis, not cases of syphilis that we have to treat. Every patient will have a special idiosyncrasy; in some the mouth will be often and seriously affected, in others the skin or bone and nerve lesions will manifest themselves early, etc.

Among other signs of congenital syphilis Dr. Bangs notes the following:

"The teeth come early and decay easily and soon. It used to be said that it was unlucky for a child to be born with teeth. The foundation for the old saw would seem to be that the irritation of the osteogenic and kindred systems set up by the syphilis toxins causes early development of the teeth. Needless to say that the unluckiness of the symptom is evident in this case.

"The Hutchinson teeth. In the permanent set of teeth the upper central incisors are pegged, apt to be separated and are notched, the enamel having disappeared from the central portion of the cutting edge. They do not always occur after congenital syphilis, but only where there has been a good deal of severe and generalized syphilitic sore mouth.—*Jour. Amer. Med. Association*.

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THE DENTAL BRIEF.

VOL. IV.

PHILADELPHIA, DECEMBER, 1899.

No. 12

ORIGINAL COMMUNICATIONS.

REPAIRING RUBBER PLATES.

*Rufus G. Beale, D.D.S.**

To render the repairing of a rubber plate satisfactory it is necessary to previously prepare a guide.

To do this cement the old teeth to the plate, and if the plate be fractured, unite, with rosin and wax cement, the broken sections.

Pour plaster into the plate to make a cast; then cover the lingual surface of the plate and cutting and grinding surfaces of the teeth with plaster, thus making a plaster bite or articulator.

If a single tooth placed between natural ones becomes broken, or if the broken portion of the plate is missing, it is usually necessary to take an impression of the space and the adjoining teeth, or an impression of the missing portion of the plate, which impression should be taken with the plate in the mouth.

When a plain tooth or a sectional block is broken, and the rubber back of the pins is moderately thick, heat the tooth or block and carefully remove it from the plate. Then enlarge and undercut the pin holes with an engine bur. Scrape the portion of the plate immediately beneath the teeth to make the new rubber adhere.

In placing the new plain tooth or the sectional block it may at times be necessary to unite the pin holes, and groove the undercut to accommodate the pins after the grinding and fitting.

The holes or grooves in the plate should be slightly more than filled with rubber, previously softened, and a thin layer

* Instructor in Prosthetic Dentistry in the Pennsylvania College of Dental Surgery.

pressed over the old rubber immediately beneath the porcelain teeth. Then heat the teeth and force into position, holding them firmly until the rubber is cool. The excess of rubber should be trimmed off with a warm spatula. Invest the case in the flask and vulcanize. This will make a strong and invisible repair.

In case the rubber forming the portion of the plate back of the porcelain teeth is thin, it should be removed, and so filed as to make a dovetail space. Holes should be drilled at this point to retain the teeth (Fig. 1, letter A), and filled up with soft rubber, a thin layer of which should also be placed over the old rubber beneath the porcelain teeth, as before described. Then heat the teeth and press firmly into place.

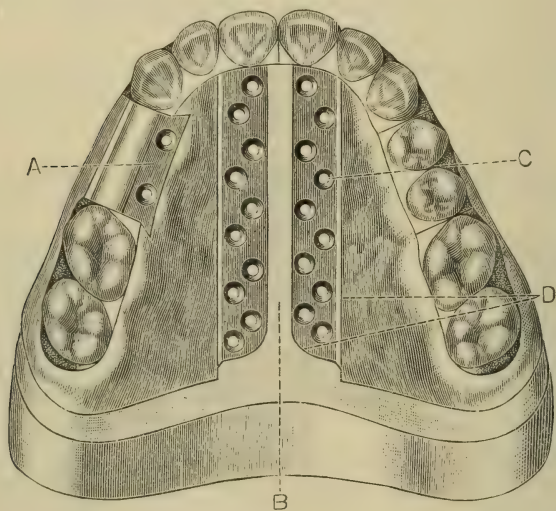


Fig. 1.

After this pack around the pins with soft rubber, using enough to fill the space a little more than full. Trim away the surplus and smooth the surface with a hot spatula. Flask the case and vulcanize.

In flasking place the sections of the flask together and fill with plaster mixed to a thin consistence. Place plaster on the inner portion of the plate, as though making a cast, then imbed the plate with the soft plaster upon it in the filled sections of the flask.

Jolt the flask to exclude the air, and allow the plaster to come in contact with every portion of the plate.

Where a plate is broken into two pieces, after making the guide, remove the teeth from each side of the break, or if necessary from over the break. The broken edges of the plate should be filed, so that the new rubber between will be a little more than one-eighth of an inch in width, as shown at B, Fig. 1.

About a quarter of an inch from their new edges make, with a sharp chisel, a clean cut about a line in depth, running parallel with the edges, and extending the length of the fracture. Then bevel this space from the chisel line, terminating in a knife edge at the filed portion of the plate. A number of holes should be drilled through the beveled portion of the plate, which holes should be countersunk on both sides. Fig. 1, letter C.

The object of making a clean cut, a line in depth parallel with the filed edges, and cutting in and rounding off the rubber at the plate line (Fig. 1, letter D), is to allow the new rubber to end in a thick and relatively well-defined edge, and restore the posterior portion of the plate in one thickness of rubber; thus preventing curling up of the rubber in polishing, which is certain to occur when the new rubber overlaps the old.

When these details have been completed, place the sections of the plate on the cast, and hold in position by the aid of the thumb and finger, while packing the rubber on the labial or buccal surface of the plate, after which the sections should be made fast to the cast by retaining them with rosin and wax cement at the circumference of the plate. Pack the rubber by filling up the holes on the palatal portion of the plate with small particles of softened rubber, and fasten in place with a warm spatula; after which cut a piece of rubber large enough to fill in the open space between the plate edges, and press well into place, being sure to have a sufficient quantity to trim up well in the polishing process. Then seal the edges of the new rubber with a warm spatula, and thoroughly cover the entire palatal portion of the plate, and the cutting and grinding surfaces of the teeth with freshly mixed plaster, which should be allowed to harden to guard against any possible displacement of the sections while flasking. Flask the case as before described, on the cast; but with the plaster support. Do not open until after the vulcanization of the rubber.

A large amount of wax and rosin cement should not be used

at the circumference of the plate to retain the sections; all should be removed previous to flasking, excepting that which is absolutely necessary for holding the plate to the cast. A thin line of the cement at this part of the plate will not effect the fit of the denture in any way, after the vulcanizing process.

In the method above described the rubber can, with care, be worked with a warm spatula almost as easily as wax, and the plan does away with packing the case in the flask after the usual manner, and the attendant possibility of working an excess of rubber under the palatal portion of the plate when closing the flask, thus impairing the fit of the plate. This method of preparing the plate and packing the rubber also embraces cases of repairs of lower plates. Fig. 2 shows the preparation of the plate for the rubber.

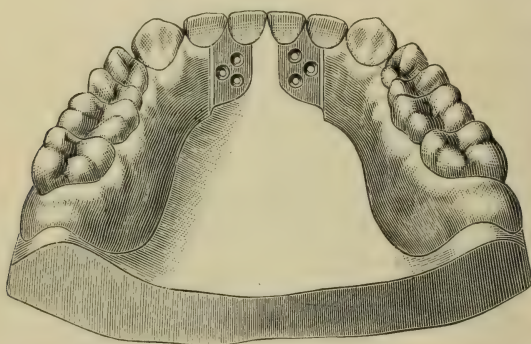


Fig. 2.

When the rubber cannot be placed in position with the teeth, it is necessary after the dovetails and holes have been made, to prepare the case in wax. Invest in the lower section of the flask, pack, vulcanize and finish after the usual manner.

The above described method of repairing rubber work will be found time saving, and to insure a non-porous result. My object in describing it is not so much to call attention to the packing of the rubber, as to the mode of preparing the plate for repairing; it is a method which, after finishing, produces well-defined lines, and makes an extremely strong and neat repair. It has been used by me for more than twelve years with entire satisfaction.

PORCELAIN TEETH, AND THEIR COST.

William R. Hall, D.D.S.

The remark recently made in a dental journal that this is the "porcelain era of dentistry," although written in relation to porcelain inlays, might be extended to include porcelain teeth. The enormous production of these teeth by manufacturers at the present time reveals the extent to which artificial dentures are worn.

To the writer, the low price at which these teeth are made is a constant cause of wonderment. Some manufacturers selling to dealers sets of fourteen teeth for sixty-five cents per set, a price so small that it would seem impossible to return any profit to the manufacturer when cost of plant, wages of employ  s and other necessary expenses are considered.

At least half the outlay for teeth is for the platinum of which the pins are composed. The cost of this metal is constantly increasing, owing to its limited production and its large use by electricians. To partly make up for this increased cost, some manufacturers resort to a reduction in the thickness of the pin. Pure platinum is a very soft metal with not much tensile strength; if the pins are reduced in diameter below the usual thickness, No. 19 standard wire gauge, they are liable to pull out of the teeth or break off. One way out of this difficulty is to make a harder wire. It is generally known that if pure platinum is alloyed with irridium, a much harder wire, and relatively of greater tensile strength, is produced; but some improperly alloyed wire was used for pins in gum sections a year or so ago, and caused considerable annoyance and loss to dentists who were so unfortunate as to select them, as the pins were too brittle and broke off sometimes before or soon after the teeth were mounted.

Another large item of expense is the large number of brass molds that are needed; they are costly, and when used constantly wear out quickly. The pattern maker and mold cutters making these molds are skilled workmen, who by long study and practice acquire the technic of the art, and command high wages.

If a large manufacturer requires duplicates of some new and excellent mold, he uses a reproducing machine, which casts a bronze mold so exact and smooth that but a short time is required to prepare it for molding teeth. These machines cost

from twelve or fifteen hundred dollars. The number of molds in use in the larger factories reaches from hundreds to thousands, and the cost is anywhere from ten to twenty-five dollars per mold.

And now if we enumerate but briefly the materials that go into the porcelain tooth, and the labor required to prepare them, we shall see that they constitute another considerable item of expense. One of the minerals which enters largely into the body of the tooth, and constitutes three-fourths of its bulk, is feldspar. The best quality of this mineral is mined among the hills in the extreme northern portion of the State of Delaware. The crude material must be selected with care, crushed and ground fine in large grinding mills; silica and kaolin are similarly treated, and mixed in due proportions. This mixture colored with titanium oxid forms the body and the strongest part of the tooth.

The enamels, of which there are a great variety, are principally feldspar. They form the face and cutting edge of the tooth. The enamels are colored with metallic oxids of various kinds, such as titanium, uranium, chromium, nickel, platinum, and cobalt. The metals gold and tin are chiefly used in preparing the gum enamel.

All these crude oxids are prepared in frits, except the titanium. The oxids are intense coloring materials, and require thorough pulverizing to bring out their full strength. A single grain of oxid will color a pound of enamel if carefully ground.

Making the gum enamel is the most interesting process, also the most difficult. It is made by combining pure gold and tin in an acid solution of silver. The process as given by Dr. Wildman is long and tedious, but is the one generally used. It consists in melting the pure metals, gold, tin and silver together, and granulating the alloy. This is then dissolved in diluted nitric acid. The acid unites with the silver; the gold and tin unite and form a double oxid of these metals, this combination constituting the basis for the beautiful pigment known as purple of cassius; the double oxid of gold and tin on standing will sink very gradually to the bottom of the vessel. The precipitate washed thoroughly from silver nitrate with distilled water, is then dried. Afterward it is ground exceedingly fine and mixed with feldspar to make the gum enamel. The grinding of the purple color is done in a specially made mill which is used for this purpose alone. It is run by steam or electrical power. There is another process which does away with the grinding almost alto-

gether, and produces a much stronger color, yielding about twice as much gum enamel.

The molding and burning processes are performed by employés, especially trained for the work. They are divided into parties or bands, each being assigned to some particular part of the process. One set of girls is employed to fill or enamel the molds. Taking the prepared enamel, a small portion is dexterously placed and arranged for the point of the tooth, this being followed with a portion of body rather more than enough to fill the tooth part of the mold. After closing, the mold is passed to the pressmen, who force the mold together with a heavy press. This condenses the composition. The mold is then clamped and exposed to a moderate heat to dry and harden the porcelain. When removed from the molds the teeth are hard enough to handle. They are then passed to the girl trimmers who trim and repair such as are injured in molding, and arrange the teeth in sets on fire clay slides; they are then ready for the last process—burning.

The burning is done in very large fire clay furnaces, which for strength and security are bound around with strong iron bands. These furnaces have a capacity for burning from four to five hundred sets of gum sections at each firing. The firing generally lasts the entire day. Owing to the heat the work is very exhausting to the men employed.

The last operation consists in matching the teeth and placing them on wax cards ready for sale to dentists or dealers in dental goods.

From this hasty glance at the various but essential points in the manufacture of teeth it is a matter of surprise that they can be produced at the present low price. In the face of the advancing price of platinum it would seem that even for manufacturers of large capital, great business experience, and with every advantage for effecting economies in production and sale, the low price of porcelain teeth must have reached its limit.



ABSTRACTS AND SELECTIONS.

THE EARLY DECAY OF THE TEETH IN BRITAIN.*

By James Cantlie, M.B., F.R.C.S.

The national importance of the subject can hardly be over-estimated; we cannot expect to rear a healthy race on carious teeth. * * * As to cause scarcely two people are agreed upon the subject. One blames sweets, another infant foods, a third declares that children partake at too early an age of animal food; some contend that it is a developmental change, and that in time the teeth will disappear. * * * There is scarcely an inherited disease or a variety of food and drink which has not been suggested to me as a cause.

The idea that in our quest after education we are attracting a superfluity of blood to our brains, and thereby starving our teeth, is not true. The future of our teeth is laid before the child has begun to use its brains; and not only is this true of the milk teeth, but of the permanent, and one may fairly gauge what the state of the permanent teeth is to be by a study of the development and shape of the jaws at that period.

The dental art has attained so high a position in this country and in America, that so far as the mechanism of the art goes, there is but little more to be done. But I would like to induce our dental brethren to look a little further afield, and tell us how to rear the child so that the teeth, while yet unerupted and within the dental sacs, may be allowed to grow to the greatest perfection. It is not only when the teeth are through that I would ask the dentist's aid; it is to a period when the basis and substance of the teeth is being formed that I would wish him to direct his attention. If dentistry is to aspire to the highest ideal, it must not be content with merely repairing or removing damage done. We look to it to tell us why do our children's teeth decay so early, and what steps are we to take to remedy the evil, so that sound teeth in the young may be hoped for? It is during the period of growth and development, during the antenatal stage perhaps, or at any rate, during the first few months of infant life that we must look for guidance and direction. We

* Abstract of paper read before the Section of State Medicine, at the Sixty-seventh Annual Meeting of the British Medical Association, August, 1899.

want to know what error of diet or mode of living on the part of either the mother or the child fills our children's mouths with painful stumps and festering abscesses. * * *

Artificial food, and more important still, an artificial manner of feeding has become a general custom. The wet nurse is a being of the past. In many instances the natural mother has also to a large extent disappeared. Pleasure in one phase of society, and self-imposed form of labor in the other, has deprived the infant of its natural food. Women among the leisured class will not allow the nursing of their children to interfere with the routine of what they are pleased to term social duties; whilst among the less opulent class the gossip at the mill has more attraction than the prattle of children. The natural calling of both classes is being sapped by the shadowy myth of female rights and independence, and the future is being sacrificed to pure selfishness. A majority of children are now brought up on the feeding bottle. The food is composed of cow's milk, warm water and cane sugar. These are all artificial and unnatural elements for the human offspring, usually given at a temperature far above blood heat, to the detriment of the mucous membrane of the mouth. Owing to the counter irritation set up by these hot fluids, and the congestion of the gingival membrane it produces, the dental sacs are starved, the normal amount of nutrition being withheld.

Given healthy teeth the young may grow to perfection; with carious teeth they cannot. I have not traced further the trouble of bad teeth; dyspepsia, the production of ptomaines, convulsions, neuralgia, headache, the development of a physique in which the seeds of disease are only wanted to generate tuberculosis and allied diseases. I am sure that were we to consider the infant's welfare during the first two years of life, we would contribute not only to lessening the amount of tuberculosis, but strike at the root of many other important ailments which fill our hospitals and account for the degeneracy of our unborn population more especially. The early decay of the teeth is but one symptom of want of care of the infant; but it is an evidence of something wrong which is patent to everyone, and which causes anxiety to the parent, suffering to the child, and deterioration of the national health.

I would test the effect of my words and your earnestness in the matter by asking you to draw up a form of a motion to

be submitted to the Council of the British Medical Association to nominate a commission to deal with the subject; on that Commission I would place two dentists and a physician, men who are versed in children's ailments and possessing the scientific attainments necessary for such a work. I would suggest that a grant of £100 be asked for the purpose, and that the Americans, and perhaps Germans, French and Italians, be asked to co-operate with the British Commissioners, and to present a report, preliminary, if only that form be feasible, by January, 1901.

After discussion of the paper, the following resolution, proposed by Mr. Cantlie, seconded by Dr. Elser, was then put to the meeting and carried unanimously:

"That in view of the early decay of the teeth prevalent in Great Britain, this section requests the Council of the British Medical Association to appoint a committee of not fewer than three persons to inquire into the subject, and to report thereon to the Council in twelve months from the date of appointment."

British Medical Journal.

DENTAL SURGEONS IN THE ARMIES AND NAVIES.

S. H. Stout, A.M., M.D., LL.D., Dallas, Texas.

In an interesting article by Herbert H. Shapard, D.D.S., entitled "Dentists in the Army and Navy," which appeared in the *Texas Medical Journal* in the August (1899) number, I find the following sentence: "I cannot see why it is not just as important to have dentists in the army and navy as to have physicians."

To this I say "Neither do I."

While I was medical director of the general hospitals of the late Confederate army and Department of Tennessee, I directed the employment of dentists from among the detailed men at every hospital post in the department, and experience vindicated me in thus issuing this important direction.

The following narrative is of historical interest, and doubtless Dr. Shapard and his brother dentists will be pleased to read it.

Some time during the winter of 1862-'63, I was called to the dental office of one Dr. Bean (a Marylander by birth, and refugee from Knoxville, Tennessee, the place of his residence, which he left upon the threatened approach of the Federal army, and

opened an office in Atlanta, Georgia), to administer chloroform to the wife of a long intimate friend of mine, a captain commissary. Dr. Bean very skilfully and rapidly extracted more than a dozen diseased teeth from the lady's mouth. He had a full equipment of instruments, was well educated, and skilful. He was suffering from chronic rheumatism, some of the joints of his lower extremities much distorted. I complimented him upon his skill. He proposed to appoint two days in the week to do dental work for the soldiers in hospitals free of charge. His proposition I cheerfully accepted, and issued a circular to all the surgeons in charge of the hospitals in Atlanta urging them to avail themselves of the offer of Dr. Bean, and also to freely admit his presence at any and all surgical operations he wished to see. He was a gentleman of far more than mediocre intelligence, as well as mechanical skill. While visiting the Medical College Hospital, Dr. Bean's attention was called by Surgeon W. F. Westmoreland, in charge of that hospital, to the difficulty of making patients comfortable when suffering from gunshot fractures of the lower jawbone. Dr. Bean, at his request, devised an appliance made of wire which was comfortable to the patients and permitted them to talk, and even in many cases to masticate their food. So great was the success of Dr. Bean's apparatus for the treatment of fractures of the lower jaw, that I directed all such cases to be sent to the Medical College Hospital that they might have the benefit of treatment under Surgeon Westmoreland and Dr. Bean.

Surgeon Covey (formerly of the U. S. Army) being sent to the Department of Tennessee by the Surgeon General, S. P. Moore, on a tour of inspection, was so pleased with the appliance invented by Dr. Bean that he made it the subject of a special report, which was published in the *Confederate States Medical Journal*, of which I now have a copy.

By a special order of the Surgeon General, Dr. Bean went to Richmond and there demonstrated his appliance to the surgeons on duty in the hospitals there. A few years after the Confederate war Dr. Bean visited Europe, and while exploring the Alps he was frozen to death. He was a man of liberal education, a scientific and most skilful dental surgeon, worthy of honorable remembrance by all the members of his useful and progressive profession. Peace to his ashes.

In my administration as hospital director, I early directed

the purchase of dental materials and instruments with the hospital funds, to be used by dentists detailed for that service in the hospitals, under the supervision of the surgeons. After, on several occasions, pressing the subject upon the attention of the Surgeon General, he issued a circular authorizing the employment of dentists of qualifications approved and vouched for by the medical directors, with the rank and pay of hospital stewards. A form of monthly reports of the work of these dentist hospital stewards was prepared and forwarded to the medical directors, with the approval of the surgeons in immediate charge of the hospitals. The dentists made monthly reports from which were made consolidated reports that were forwarded monthly by the medical directors to the Surgeon General. The cost of dental materials and appliances was paid for out of hospital funds. I have in my possession now, copies of some of those printed forms of dental reports.

Thus you will see that I am the first army medical officer in high authority, who ever recognized the importance of the services of dental surgeons, and the first to use them in army practice. Had the Confederacy survived the conflict of arms with the United States government, I doubt not the regulations of its army and navy would have contained provisions for the utilization of the services of dentists, in both field and hospital service and aboard war vessels.

The facts above stated were of general notoriety during and for several years after the Confederate war. The now venerable W. H. Morgan, M.D., D.D.S., Professor in the Dental Department of Vanderbilt University, early became cognizant of them, and at one of the earlier meetings of the Southern Dental Association nominated me and secured my election as an honorary member thereof.

Just why it is, after such a signal vindication of the practice of employing dental surgeons in army practice, the practice has not been adopted in the U. S. army and navy, we are left to surmise. Is it because the officials of those military branches of the public service are so wedded to the old regulations, which are a century or more old, and which in many particulars are not appropriate to field service in time of war, nor in line with the progress of the age, that they cannot get out of the ruts that prevent the effective care of the sick and wounded, because of the routine usages of military establishments, which in times of

peace move and act slowly on account of the red tape that often obstructs rather than helps active movements, and, because of the delays it causes, inflicts greater hardships upon suffering soldiers?

It is a fact of record that the results of medical and surgical practice in the Confederate armies were numerically more favorable than those achieved by the medical staff of the Federal armies, although the former labored under the disadvantage of a meagre supply of medicines and surgical appliances, which, by the Federal government, were declared to be contraband of war. It would perhaps be deemed uncharitable to surmise that those responsible for the care of the soldiers and sailors of the United States, when sick and wounded, like the Jews of old, who believed that "no good could come out of Nazareth," think no good lessons touching the care of the sick and wounded in time of war can be learned from the experiences and successes of the medical officers in the service of the Confederate army and navy.

Texas Medical Journal.

NECROSIS IN BONE AND ITS TREATMENT BY THE ORGANIZED BLOOD CLOT.

C. B. Parker, M.D., Cleveland, O.

Necrosis is not a disease. It is the termination or sequel of disease. In its strict meaning, the word is synonymous with gangrene, mortification or sphacelation. By our American and English authors, as well as by common usage, the term necrosis has come to mean death of a visible portion of bone. While to the same condition occurring in the soft parts, the terms gangrene, mortification or sphacelation are applied.

Necrosis of bone and gangrene of the soft parts take place in the same manner, and result from the same causes, and there is no reason why they should receive different designations, simply because they occur in different anatomical structures. But these terms have become so intimately associated in the medical mind with these very anatomical structures, that, for the present at least, there is no hope of any change. In our day, death of bone will never be described as gangrene, and moist gangrene will never be described as necrosis. Recent German writers have made a very useful distinction between the terms necrosis and gangrene by which we may retain them both. Ac-

According to this distinction, the term necrosis is applied to any tissue in which the circulation, nutrition and function have ceased, whether this accident occurs in the osseous or soft tissues.

The term gangrene is to be applied when saphrophytic bacteria invade the necrosed tissue, and give rise to decomposition.

Under this view, necrosis occurs everywhere as a physiological process in the death of the individual cells, in the retrograde processes of nutrition.

In normal metabolism the building up equals the tearing down, *i. e.*, regeneration, and in the earlier periods of life, even more. That is, growth. If the number of necrotic cells are greatly increased for any cause, without a corresponding increase of the regenerated cells, we have a numerical atrophy, *i. e.*, a cellular necrosis. Or all the cells in a visible part, be it in osseous or in soft tissues, may die. We then have a total necrosis. Thus, broad as the field included under the subject of necrosis is, it will be my purpose to take up the subject only so far as it occurs in bone, bearing in mind, however, the wider significance given to the term in modern medical parlance.

Bone serves not only as a supporting framework for muscles and organs; it also has important physiological functions. In the red marrow, during extra uterine life, both red and white blood corpuscles are formed. The red ones, according to Bizozero, being formed from erythroblasts within the blood-vessels of the red marrow, and the colorless ones from lucoblasts, in the extra-vascular parts of the red marrow.

After copious hemorrhage, when the animal forms a larger number of corpuscles than usual, as if it were striving to make up the deficiency, the number of nucleated red blood corpuscles in the red blood-forming marrow is greatly increased, and even parts of what was previously yellow marrow appear somewhat reddish.

In view of these important physiological functions of bone marrow, we need not wonder that the pathological changes in these tissues are likewise important and striking, and, furthermore, that they are identical with those that take place in the soft parts under similar conditions.

Inflammation in the soft parts equals.....Osteitis in bone.
 Organization in the soft parts equals.....Sclerosis in bone.
 Abscess in the soft parts equals.....Abscess in bone.
 Ulceration in the soft parts equals.....Caries in bone.
 Gangrene in the soft parts equals.....Necrosis in bone.

Mr. Savory, of London, has pointed out, and Dr. Roswell Park has emphasized, the remarkable resemblance in anatomical structure existing between bone and lung, and the identity in course, accidents and termination of the same disease occurring in them. For example, tuberculosis. Thus it has been shown that cancellous bone much resembles the parenchyma of lung tissue. Both are eminently spongy. The pleura bears much the same anatomical resemblance and physiological relation to the lung that the synovialis does to the bone end; just as pleuritis is set up in phthisis, so is synovitis in tubercular osteitis; just as adhesions tend to form in the pleural cavity, so do they in the synovial cavities also; just as obliteration of internal veins causes prominence of subcutaneous veins about the chest, so are the superficial veins enlarged about a tumor albus; just as a tubercular pleuritis may lead to an empyema, with all its disastrous consequences, so may a tubercular synovitis lead to a pyarthrosis (empyema of the joint), with fungus ulceration and the like. In almost every feature, then, is the variable progress and effect of tubercle in bone and lung alike. Furthermore, as in the larger number of cases, the tubercular affection seems to locate by preference in the extremities of the lungs, *i. e.*, the apices, so do we find that in bones it is most common in the vicinity of the joint ends.

This comparative similarity between two such apparently different tissues as bone and lung, only serves to emphasize the identity of pathological processes in osseous and soft structures. It is greatly to be regretted that we have no common nomenclature to indicate these identical processes. The contrasts which seem to exist between these structures under pathological conditions are really differences in symptoms, and are due chiefly to the peculiar structure of bone.

Bone contains a large proportion of earthy matter, which is perfectly unyielding, inelastic, and, so far as pathological changes originating in it, perfectly inert matter. Pain in all bone affections is more severe than in similar affections of equal era in the soft parts, and swelling an ever present sign of inflammation in the soft parts, is often absent in the centrally located bone diseases. These conditions are entirely due to the unyielding character of the earthy matter in bone.

The chief causes of bone necrosis are: First, mechanical, such as trauma and embolus, not containing bacteria; second,

chemical, produced by such agents as phosphorus and mercury; third, necrosis due to the presence of bacteria.

Mechanical causes of bone necrosis include traumatisms, especially communicated fractures and other injuries where the bone is divested of its periosteum over wide areas, or its vitality otherwise destroyed. I am rather doubtful if the death of the bone in such cases is really due to being deprived of its periosteum. In simple comminuted fractures, no doubt, many fragments become denuded of their periosteum, but necrosis rarely follows. It is when germs enter, and suppuration takes place, as sometimes occurs in compound fractures, that necrosis usually results.

Necrosis may also be produced when a vessel supplying a given area of bone becomes closed by an embolus, *i. e.*, anemia necrosis. If this embolus does not contain bacteria, the death of the bone is due entirely to the mechanical obstruction.

Chemical Necrosis.—This form of necrosis occurs in work people exposed to the fumes of phosphorus or mercury in factories. By careful inspection and filling of the cavities of the teeth, by great cleanliness, and the use of amorphous phosphorus, the number of cases have been greatly diminished. The disease is often chronic, and has a tendency to destroy the new bone as it forms, and thus the maintenance of the integrity and usefulness of the bone is often difficult.

When for any cause a portion of bone becomes necrosed, a process of separation is at once begun to remove it from the living tissue: softening, liquefaction and absorption of the earthy material. Granulations spring up between the living and the dead bone, the vessels in the granulation tissue absorb quantities of the fluid produced, and as the circulation has been arrested at different points in the different vessels, the granulations will form an irregular line. Delicate finger-like granulations extend into the spaces formed in the process of absorption. As long as any communication exists between the living and the dying fragment, this process of absorption goes on. Thus the sequestrum, as the dead piece is called, when completely separated from the living bone, is far smaller, and of a different shape oftentimes, from that of the original area involved. The slower this process of separation, the more complete the process of absorption. Owing to the irritation produced while this process is going on, new bone formation is set up by the osteo-blastic cells in the per-

ioseum, as well as by the leucocytes which crowd into the area of irritation. This process of new bone formation is often so accurate as to completely envelop the dead fragment, thus serving to restore the integrity of the bone. The discharges find an exit through cloacae or openings in the new bone formation and break through the periosteum. After burrowing for some distance along the sheathes of neighboring muscles, and always in the direction of gravity, finally appears upon the surface. The sinus thus formed is lined with a thick wall of granulation and discharges creamy non-irritating pus.

Diagnosis.—The presence of a sinus and detection of dead bone is, in many cases, easy, and conclusive evidence of necrosis. That the dead bone is separate and movable is not always so readily determined. The sequestrum, though entirely separated from the living bone, may be so firmly imbedded in the involucrum that it cannot move when pressed upon by the probe. In any case, the length of time the condition has existed must determine this question, and if six or more months have elapsed, it is fair to presume that separation has taken place, and a successful attempt to remove the fragments can be made; but it is the earlier stages of inflammation, before the destruction has gone so far as to cause the later death of the bone, that the diagnosis should be made. The cases of acute septic osteoperiostitis and osteomyelitis are not common, and an early diagnosis is not always made. Three such cases have come into my hands recently, but only after some ten or twenty days had elapsed, and the signs of fluctuation were distinct, and the damage to the bone had already been done. These cases were in the hands of good general practitioners, and were regarded as rheumatism. But rheumatism never involves a single large joint, except gonorrhoeal rheumatism, and this is really a sepsis, and is often symmetrical. The subjects of acute bone inflammation are usually children or young adults, with a history of a recent attack of some zymotic disease. Such a history, with severe symptoms from the onset, should lead the surgeon to suspect the true condition. The localization of the pain in one of the bones of the extremity, and this pain not yielding to the prompt, active, antiphlogistic treatment of rest, alteratives and cathartics, within two, or, at most, four, days, I believe it is the duty of the surgeon to place the patient under an anæsthetic and explore the seat of pain, even to penetrating the bone.

Chemistry seems about to furnish a valuable means of diagnosis in these cases. It is well known that in the conversion of albumen into peptone, numerous intermediary products are formed, that is, albumoses. That bacteria, in their life activities, develop similar albumoses, and it is believed that the albumose formed by many varieties of bacteria is peculiar to each, though the chemist has yet found no perfect method of separating and identifying them. Where separation is going on in the body, certain peptones have been found in the urine. Their presence is regarded as a sign of suppuration, and the localized pain in the bone would give a sufficient indication for incision.

Treatment.—There is no advantage to be expected from internal medication in the treatment of necrosis beyond its tonic effect. We have no means of liquefying the sequestrum by remedies taken internally or applied locally, and the only relief is by surgical means. The treatment of phosphorus necrosis is special, and demands separate notice. The extensive manufacture of matches at Akron, O., has given the surgeons of the city unusual opportunities to observe the clinical characters of this disease. Dr. Jacobs, who has had an extended experience in the treatment of these cases, has kindly furnished me with an outline of his practice. After using the usual remedies for periostitis without arresting the disease, it is his practice, especially when the disease involves the lower jaw, to remove the carious teeth as early as possible, and cut the alveolar process down to the body of the bone. He then makes a furrow for drainage into the body of the bone over the whole extent of the diseased surface. This gives sufficient drainage to protect the involucrum from the destruction peculiar to this form of necrosis. The parts are to be kept clean by antiseptic washing and dressing. By this method the sequestrum is fairly loosened in time, and may be removed, and the confirmation of the jaw maintained. Early operations for the removal of the sequestrum always give greater deformity than those treated as above outlined. Indeed, he says: "I do not look for much deformity in these cases, while after my earlier operations I seldom had any kind of a useful substitute for a jaw." In the upper jaw, where the drainage is natural, he simply cuts back to the normal bone, clears out the cavity, keeps it dressed as nearly antiseptically as possible, and they recover without much loss of bony tissue.

The usual method of treatment has been to make an incision

down to the bone, strip back the periosteum, chisel through the involucrum, expose the sequestrum and remove it. Scrape out the cavity and pack with iodoform gauze, and permit the wound to heal by granulation. The treatment by the organized moist blood clot was first suggested by Schade, the accomplished bone surgeon, now at Halle. By this method, the cavity in the bone, and all the sinuses leading therefrom, are to be rendered completely aseptic, and this space to be filled by a blood clot, which, protected by suitable dressing, becomes organized into fibrous and osseous tissue. This method will not succeed in all cases, as in some the sinuses are so numerous and so placed that it will be impossible to render them aseptic. The most favorable cases are those in which the necrosis occurs in the subcutaneous bones, such as the tibia and ulna, where the sinuses are short, and where, possibly, they may all be included in the line of incision. After the removal of the sequestrum, the most painstaking scraping with Volkman's spoons should be made, and the cavity thoroughly cleaned out; next the sinuses, each in turn to be scraped, until the last fragment of lining membrane has been removed. Peroxid of hydrogen, in full strength, should be used, until all foaming ceases upon a reapplication, or bichlorid solution 1-1000 or 1-2000 freely flushed over all the surfaces.

The new remedy, formaldehyde, or formalin, recently introduced by Merck, I have found a most useful antiseptic in 1 per cent. solution. In this dilution it is an ideal bactericide, is non-irritating, and no unpleasant odor. Even in one-half of 1 per cent. solution, it is more effective as a germicide than carbolic 1 to 40. It preserves tissue equal to alcohol, does not rust instruments, and is an excellent solution in which to preserve them during operation.

So far as my experience goes with this remedy, I regard it as an ideal antiseptic. In bone diseases it has also one special marked advantage. The vapors arising from its application in a bone cavity are fully as potent in destroying germs as the solution. The advantage is obvious, as the vapors constantly rising have a tendency to destroy any germs remaining or developing later in the field of operation.

Lastly, sterilized water, to remove previous solutions; the soft parts brought into apposition and united with silkworm gut sutures. Over the united wound a sterilized strip of Lister protective, sterilized gauze, absorbent cotton, rubber tissue, and

an oakum pad, in the order named. It is my custom to immobilize the part, applying either a splint or some immovable dressing, such as starch, glass or plaster, and, where practicable, include the joint on either side of the affected part. This dressing is to remain in place two or three weeks, unless a rise of temperature and constitutional disturbance indicates that the case is not progressing favorably, when the dressings must be removed and the cause sought for, and, if possible, removed.

The number of my cases is yet limited, but the results so far obtained lead me to regret that I had not earlier practiced this method. My first case was one of necrosis of the ulna in a woman admitted to my service at Charity Hospital. The operation was performed in the manner described, and a very delicate sequestrum, $3\frac{3}{4}$ inches in length, removed; the wound dressed in the manner outlined. There was no rise of temperature or other disturbance, and in three weeks, when the dressings were removed, the wound was found solidly healed. By the open method the final result would have been equally as good, but after a much longer time and with more suffering. This method is especially to be recommended in the case of children. The fear and the pain of repeated dressings is obviated, and much actual suffering, as well as mental anguish, saved to the patient.

In the case of A. K., eight years of age, at the Cleveland General Hospital, the success of this method and the happy state of mind in which this child passed his convalescence, was commented upon by all.

In closing, I would suggest that this method may be of still wider application, especially in operations for tuberculosis of bone. We know that true suppuration does not readily occur in the caseous masses in bone tuberculosis. We are all familiar with the contents of cold abscess; that this fluid is the result of a tubercular disease in the bone, and that it remains for months, and even years, within the body, without becoming infected with the germs of true suppuration. The same is true of many tubercular foci found in bone; though they contain tubercle bacilli in abundance, the bacteria of suppuration are rarely found. In view of these facts, may we not expect good results in such cases from this method of healing by the organized blood clot?

Cleveland Medical Gazette.

PORCELAIN ENAMEL INLAYS.*

N. S. Jenkins, D.D.S., Dresden, Germany.

The process and material which I have the honor to present to you are the result of seven years of study and experiment. The evolution has progressed, through its various stages, by having the work of the laboratory at once tried in the mouth. Scientific experiment and practical application have gone hand in hand, each supplementing, criticizing, enlightening the other. More than two years ago the constituents of the body were definitely settled, and since that time a considerable number of the foremost dentists in the world have used this process, in their daily practice, with results similar to those I have myself obtained. I feel therefore justified in announcing to this distinguished association that the problem of making, with mathematical accuracy and scientific certainty, absolutely perfect fillings in diseased teeth has been completely solved.

Doubtless we shall all agree as to what constitutes a perfect filling. It must fill the cavity so exactly as to exclude moisture. It must be of a substance which will not disintegrate nor change its original form either through chemical action or mechanical force. It must have a surface so smooth that it can easily be kept clean. It must be a poor conductor of caloric. It must restore the color and shape of the teeth. It must be applicable to the most desperate cases, and must be susceptible of being used without too great a strain upon timid children and delicate invalids, as well as upon ordinary patients, and its working must not make too great drafts upon the strength and nerves of the operator. Last of all, it must be possible for any good dentist to use it with the certainty of obtaining infallible results. All these qualities are possessed by the material which I have called porcelain enamel.

At the outset I was convinced of the necessity of obtaining a substance which could be melted in a gold foil matrix. It is quite true that skilful men often obtain splendid results, in favorable positions, with properly annealed platinum; but my object was to find a process and a material which could be used successfully, by any competent dentist, in cavities in any part of the mouth, not as an unusual operation, but as an ordinary and regu-

* Read before the National Dental Association, August 1st, 1899.

lar proceeding in daily practice. With gold foil alone would this be practicable. Any capable man can certainly learn how to approach and how to shape a cavity in any position, so as to get a perfect impression in gold foil, but it will be only a most exceptionally gifted and patient man who can obtain such results everywhere with platinum foil, owing to the intractability of this otherwise most useful metal.

A perfect impression is the indispensable foundation of a perfect inlay. Gold foil No. 30 seems best adapted to the great majority of cavities. It is so thin that wrinkles can be easily obliterated, and yet stiff enough to admit of being worked out, in nearly all cases, without danger of bending or losing its shape. In very large and complicated cavities No. 40 may, however, sometimes be used with advantage. Given the gold foil impression it was necessary to find a simple and reliable method of keeping it exact during fusing. A paste of powdered asbestos and water was found to be quite strong enough to hold the impression in its place in the melting pan. In drying the asbestos, however, which may be done simultaneously with the first fusing, the moisture should be gently evaporated and not violently boiled out by suddenly applied heat.

My experiments began when the electric furnace was not in its present practical condition nor in such general use, and I found it necessary and, indeed, in many ways more convenient to use the heat of gas for fusing. A simple heater, lined with asbestos, open at one side and with a round opening at the bottom and a platinum cup and cover of a definite size, was found to be well adapted to the purpose. Through an opening in the cover of the platinum cup the process of fusing could be observed, a matter of consequence, especially in contouring. The best bellows for the blow-pipe I found to be the so-called Standing bellows, for, by its means the necessary steadiness of the draft could be obtained.

All these details, while important, were easily and naturally evolved, but the composition of the material itself was a matter of far greater difficulty.

At first I had great hopes of obtaining my aim with glass, after the manner suggested by Herbst, Richter, and others, in spite of the evidence that this seductive and treacherous substance would disintegrate in a warm, moist environment, such as the mouth affords, and it was only by repeated failures that I was led

to seek and find the happy combination of ingredients which unites the essential qualities of both porcelain and enamel. In this long search I had the frequent aid of some of the first chemists and practical experts in ceramic art, and my discovery, such as it is, was founded upon the labors of many far more able investigators.

Porcelain enamel has sufficient strength to withstand the force of mastication, and a surface which resists all chemical action except that of hydrofluoric acid. It resembles the substance of English porcelain teeth in many respects, but it fuses at a temperature of between 800 degrees and 900 degrees C., the melting point of gold being, according to the most recent authorities, 1075 degrees C. This difference is quite sufficient to prevent melting the gold matrix, except through great carelessness. The variation of the melting point is also sufficient to prevent the gold foil from adhesion to the porcelain enamel, it being easy enough, with a little practice, to strip off the gold in one piece, or to scratch away any fragments which may inadvertently remain attached to the inlay.

By the perfect removal of this perfectly exact thickness of the matrix from the inlay, the latter naturally fits the cavity exactly, and should not rock under pressure nor show a line visible to the naked eye between the inlay and the edges of the cavity.

With such an absolute fit only a slight film of cement is necessary for retaining the filling, but it is important that the inlay should be grooved with a small diamond disk before being set, and also that the cavity should receive some slight undercuts. Under such conditions the color or opacity of the phosphate cement is a matter of trifling importance. A little cement will cling for a time to the joint, and, until it dissolves, there will be a slight barrier to complete harmony of color; but it is so slight, in most cases, as to be noticeable only under dryness and with a magnifying glass. After a time the color of all perfect inlays seems to improve, owing, perhaps, chiefly to the disappearance of the slight overflow of cement, which it is usually unwise to attempt to completely remove by mechanical means.

Many objections have been raised to using phosphate of zinc for setting inlays, but I know of no such objections which are well founded. Properly used it accomplishes its purpose so well that I can see little necessity for seeking for a substitute. If the inlay fails, it is always owing to some fault in manipula-

tion and not to any defect inherent in zinc phosphate cement. If the inlay fits, as it should, the cement will no more dissolve out than under a gold filling, and with the lapse of time it becomes so hard that its removal is a matter of considerable difficulty. In my earlier experiments I used some materials which caused the inlays to discolor in the mouth, and wherever I find such a case I induce the patient, whenever possible, to have the old inlay removed and replace it with one of the perfected material; but it is an operation to be dreaded, since the old filling is almost invariably very firmly attached by the cement, which, quite as invariably, retains its color as well as its consistence.

I have no faith in the theory that pulps die under the deleterious influence of phosphoric acid. When I first came to Germany, thirty-three years ago, I found the native dentists, who were, at that time, as a class, far less well educated and capable than is now the case, using a great amount of phosphate where an American dentist would naturally employ gold. There came to me a large number of cases where the pulp had died under such fillings, but I cannot remember ever to have seen a single instance where there was not evidence that the phosphate had either been placed over an exposed pulp or else the ordinary precautions of cleanliness and thoroughness had been disregarded. In using phosphate cement in setting inlays where there remains only a thin layer of soft dentin over the pulp, it is well to saturate the cavity with carbolic acid, which can be dried out after a few minutes, when the pulp will be found far less sensitive to the irritating action of the phosphoric acid; but, even when this precaution has not been taken, I have never known a pulp to suffer more than a few hours' discomfort from the use of phosphate cement. Usually a cement with a very fine powder and one which does not suddenly crystallize is to be preferred.

The melting of the inlay requires intelligent care, like every other step of the process. The powder should be mixed with absolute alcohol, both for convenience of working, and because it evaporates with less disturbance of the particles than water, as well as because there is no danger of its conveying any deleterious substance, as lead for instance, in solution. The powder works so kindly with alcohol that one can pack and melt to the finest edge, or obtain any contour which may be desired, with the greatest certainty. A good eye for form and color is necessary. After a little practice one should be able to exactly reproduce

the form of the missing portion of the tooth so as to make unnecessary any shaping of the inlay by grinding.

The selection of the color is often a matter of difficulty. Especially in small inlays it is well to choose a color slightly darker than the tooth in a moist condition, except in approximal cavities, where a lighter color is often indicated. Selecting the color after the tooth has been dried under the rubber-dam is misleading. The inlay must correspond in color to the tooth in its natural, moist condition, and then, in a few weeks after being set, the tooth will have the same appearance as it presents when the inlay is tried in and before it is set in cement, so both operator and patient can know to a certainty, before the filling is set, what its permanent appearance is to be.

When a cavity has been prepared for a gold filling, if the operator at the last moment changes his plan and decides to insert an inlay, he will often be surprised to find, upon reshaping the cavity and giving it straight or flaring walls and obliterating undercuts, that he had left, in the first instance, some minute particles of decay or softened dentin which, under the less free opening designed for the gold filling, had escaped his observation. You have all felt the chagrin which occasionally comes to every dentist at discoloration under a mechanically perfect gold filling, but such an annoyance, for the above as well as for other reasons, is not attendant upon inlay work.

To be sure, the operator, in the beginning at least, must be prepared to give this work more time, cavity for cavity, than is necessary to his more accustomed method of gold filling, but he will find the work less exhausting, more remunerative, and far more satisfactory. Last of all, if the testimony of the patient is to be accepted, inlay work is incomparably more merciful. Nearly all patients who are not insensible to pain and physical discomfort declare, having once experienced the difference between the two methods, that they will never again submit to the torture of the mallet and the sensitiveness to changes of temperature which accompany gold work in any case where an inlay is practicable, and its practicability is almost universal.

Porcelain enamel has a wide field of usefulness in crowns and pivot teeth. It adheres fairly well to platinum, but, of course, in building up crowns it should usually have some support from pins also. The most beautiful work can be done with its aid in pivot teeth, and where roots are banded the visible portion of

the band can be covered, to great advantage, either with gum color or with the color of the tooth itself. In melting upon porcelain teeth, however, care should be taken to melt the porcelain enamel gently and only just sufficiently to accomplish the purpose, that the expansion should be as slight as possible. This precaution, and slowness in cooling also, are only necessary when American teeth are used. Porcelain enamel has a far greater affinity for English teeth, to which it attaches itself so naturally that there is little fear of cracking in cooling. By its means the color of a pivot tooth can be perfectly preserved, or, if desirable, a slight lightening or darkening of the shade of the tooth can be easily obtained.

The process of manufacture is a complicated and difficult one, so that the material is relatively expensive, but its original cost is a matter of no consequence in comparison to its usefulness. Arrangements have been made to supply the American demand, and I feel confident that all of you who adopt this method will find it as advantageous to yourselves as it will surely be to your grateful patients.

Dental Cosmos.

NOVELTIES IN PROSTHETIC DENTISTRY.*

R. M. Sanger, D.D.S., East Orange, N. J.

No one of the many new devices which have been added to the paraphernalia of the prosthetic dentist in recent years has seemed to fill the proverbial "long-felt want" as completely as the electric furnace. Now that we have added to that the line of high-fusing bodies of definite colors, from which we can select, as we would teeth from a shade ring, the exact color desired, we have a well-nigh perfect outfit with which to meet easily some of the perplexing question which confront us in connection with crown and bridge work. Of the various uses to which I have put this outfit I have selected two for your consideration, not because of any originality, but in the hope that they may prove new and helpful to some of my hearers.

In placing all-porcelain crowns on the incisor teeth, the difficulty of making a perfect joint has led to the introduction of several devices of doubtful utility. I believe the following method has come nearer solving the problem, at a less cost of

* Read before the Dental Society of the State of New York, May 10th, 1899.

time and labor, than any that has yet come under my personal observation.

Let us assume, for the purpose of illustration, that an incisor, the crown of which is two-thirds gone, is to be replaced with a porcelain crown. The canal being properly prepared and partially filled, the tooth is trimmed down on the labial side with an Ottolengui root facer at an angle of about forty-five degrees, to a point well under the festoon of the gum; it is then trimmed with the same instrument at the same angle on the palatal side flush with the gum, giving the appearance of a wedge with the labial side a little deeper than the lingual. A Logan crown is selected of the required color and width, the length being sufficient without grinding. A piece of very soft platinum foil is then carefully burnished over the end of the root, leaving plenty of surplus anteroposteriorly, and as much as possible on the sides. The center is perforated for the passage of the pin and the platinum is laid aside.

The properly colored body is mixed to the consistence of thick cream and carefully worked into the recess of the crown about the pin until it is overfull. The platinum is then placed on the root, care being taken to get it into exact position, and the crown pushed home in much the same manner as when cementing it fast. This forces out the water and leaves the body almost dry. A little bibulous paper is passed around the edge to take up the water, and with a fine camel's-hair brush the surplus body is removed, and the tooth, body, and platinum withdrawn intact. These are placed at the entrance to the furnace for about two minutes to complete the drying, then carried to the center and the heat raised until the porcelain is fused, when it is shut off and the piece allowed to cool.

The whole process of baking and cooling takes about ten minutes. The work is tried in the mouth to be sure nothing has been disturbed, and then if there has been any appreciable shrinkage, which is unusual, the loss is made up by painting on a little more body with a camel's-hair pencil and baking the piece again. When cool the platinum is readily stripped from the porcelain with a pair of operating pliers, and we have a perfect-fitting V-joint, which is universally recognized as the most desirable.

The detail of cementing the crown in place is familiar to all, and needs no description here.

Badly decayed roots, with one side gone far down below the gum margin and the canal enlarged by decay to a cone shape, and yet with sufficient strength to carry a crown, if it could be accurately fitted and fastened, often present themselves for our consideration. The edges remaining above the gum are cut down with a facing instrument far enough to conceal the joint, and the canal is cleansed and prepared for the reception of the pin.

A piece of soft platinum foil is rolled into the shape of a cornucopia and placed as far up in the canal as possible, and allowed to extend well down beyond the gum line. It is then packed nearly full of cotton or bibulous paper, which forces it against the walls of the canal, and while the cotton and platinum are held in position with a hand plugger the protruding portion of the platinum is burnished over the edges of the root and gum and shaped to restore the contour of the root where it is broken down. The cotton is then withdrawn, the platinum cornucopia removed, and the flaps soldered with pure gold. A piece of 18 gauge square platino-iridium wire about one-third longer than the platinum shell is filed to a point, placed in the cornucopia, and caught at the apex with a little pure gold solder. The piece is again placed in the root in order that the pin may be given the desired direction without bending the platinum shell. It is then removed, filled with body flush to the edge, and baked. The overlapping platinum is carefully cut away and the piece put back in the root. We now have a perfect-fitting dowel with a shoulder extending out to the margin of the gum sufficiently to admit of the attachment of a crown. A cross-pin facing having long pins is selected and set in position on the dowel in the mouth, and the pins bent around the protruding post, much after the manner of the How crown. The whole is removed, built up with porcelain on the palatal side, and baked. This usually requires to be done twice where so large a quantity of body is used. The piece is now ready to be cemented in the usual way.

Note that in this case the platinum foil is not stripped off, but remains as a part of the pin, and, being slightly serrated with the sharp blade of a penknife and completely filling the canal, the minimum quantity of cement is required, making the strongest hold it is possible to obtain.

One of the greatest bugbears to the crown and bridge worker is the fracturing of the porcelain facing after the bridge

or crown has been set, oftentimes necessitating the removal and partial destruction of the remainder of the work in order to repair the otherwise slight damage. Dr. Bryant, of Washington, introduced an admirable method of replacing these facings in the mouth by cutting threads on the pins, drilling and countersinking holes in the backing, and screwing on beveled gold nuts from the palatal surface. The principal objections to this method are the difficulty of drilling the holes for the pins in a proper position to make a perfect joint, the danger of fracturing the facing by too much pressure in screwing it home, and the necessity of always using cross-pin teeth, which in my opinion never should be used for facings, unless the closeness of the bite makes it absolutely necessary, which is unusual, as the pins in these teeth, being set side by side, leave the minimum amount of porcelain where strength is most required; whereas the straight-pin teeth—the teeth usually being longer than they are wide—admit of the pins being set farther apart and the maximum amount of porcelain placed where it is most needed. In order to overcome the objections to Dr. Bryant's method, the following procedure is recommended: A straight-pin tooth is selected and backed with 26 gauge gold or platinum plate, the holes in the backing are deeply countersunk, the pins cut nearly flush with the backing, and the tooth with the backing on, but not fastened, ground to fit the piece. They are then removed, and the cutting-edge held against the flat side of a stone and ground square across. A flat piece of gold plate is then fitted to the cutting-edge and allowed to extend a little beyond all the margins. Twenty-two carat solder is flowed over one surface of this in sufficient quantity to form the cusp. It is then placed in position on the tooth, waxed fast to the backing, and the two removed, soldered together, replaced on the facing, the edges ground flush, and the cusp formed. The facing is then laid aside, and the backing, with cusp attached, is placed in position on the piece in the mouth and a hole drilled through the backing and piece from without inward; the hole in the backing is countersunk in the surface next to the porcelain facing, and a threaded gold wire, the same size as the drill, is passed to place and fastened to the backing with a drop of sticky wax. It is then removed from the mouth and soldered in position on the backing, the surplus of pin and solder are ground away to allow the porcelain to go to place, the porce-

lain is placed in position on the backing, the pins riveted and, after investment, soldered fast. As the threaded pin fits the hole in the piece tightly, the serrating of the sides of the hole with a wheel bur to give a cling to the cement is all that is necessary, and the simple cementing of the piece with a creamy oxy-phosphate of zinc gives all the hold required. The grinding off of the protruding pin after the cement is hard reinforces this, however, by upsetting the thread and forming a slight rivet, and you can if you choose add a beveled nut after the Bryant method, but I have yet to record a failure without this. The method of forming the cusp here described was introduced by Dr. Finney, of Baltimore, and is as applicable to the original work as to the repair, as it practically eliminates all danger of fracturing the porcelain in soldering.

THE COATED TONGUE.

The fur on the dorsum of the tongue consists of epithelial cells, detached papillæ, considerable granular matter, organic and inorganic, all of which is kept in a state of fermentation by schizomycetous fungi. Millions of these microöganisms may be found in a small particle of the coating. These fungi consist of micrococci, sarcinæ, bacteria, spirilla, innocent or infectious, if an infectious disease exists in proximity. If one member of a family has tuberculosis consumption, tubercle bacilli may be found in the coating of the tongues of the other members. The microörganisms thus found growing on the tongue are constantly washed into the stomach at every meal; thence are carried into the blood, probably through the lacteals. In this manner the blood may be supplied with so many germs that infection sooner or later takes place.

From a clinical standpoint this coating plays still another rôle, and should be looked upon as a comparative index to the purity or impurity of the blood. To say that it indicates or depends upon the condition of the stomach, or is simply of such and such a character in certain diseases, means nothing but the statement of a coincidence.

When the urine stands for a time in an unclean vessel, the solids, including both organic and inorganic constituents, are precipitated. The larger the amount of waste matter drawn from

the blood and the denser the urine, the greater will be the amount of the precipitate. The same changes occur in all the other fluids, excretions, and secretions of the body when their temperature and normal conditions vary.

THE SALIVARY SECRETION

is composed of certain normal constituents. Besides these normal constituents, which vary within certain limits, there are undoubtedly some abnormal elements which are carried out through the glands from the blood when it is surcharged with impurities. Now, when this abnormal saliva is thrown into the mouth and subjected to the action of the numerous microorganisms of fermentation, more or less of the solid matters are thrown down and constitute a salivary precipitate, which lodges on the teeth and on the dorsum of the tongue, also on the gums and lips, which, in cases of typhoid fever, is known as sordes. This salivary precipitate can be recognized on the teeth, as it roughens their surface. It is easily removed by the use of the tooth-brush. It covers the teeth as a whitish deposit, which microscopically shows the different forms of micrococci and bacilli. Upon the tongue it is allowed to remain until it becomes very offensive, unless it is systematically removed by scraping. It undergoes fermentation very readily, and is usually of the same character, consequently communicating an odor to the breath which is recognized as being the same whenever it occurs. In Bright's disease, in diabetes, and in almost any disease in which the nutrition and excretory organs are disordered, the coating becomes very foul, and the fouler the tongue the more serious the condition of the patient, the more sluggish his excretory organs, and the more heavily loaded his blood is with toxines. In some diseases the odor of the breath, as well as the color and character of the coating, is peculiar to the disease, depending upon the peculiar form of toxines with which the blood is charged.

BESIDES THE SYSTEMIC GERM

infection, it is a question if the highly offensive odor, noticeable in any case in which the tongue is heavily coated, has not also a considerable depressant effect on the nervous system, if not on the nutrition, acting much like a gaseous poison, as all the inspired air is laden with it as well as the expired air.

It has been our custom, when consulted regarding a foul breath or coated tongue, to advise the patient to procure a tongue scraper and diligently clean the tongue every morning as a part of the morning toilet, using after it a disinfectant mouth wash on the tongue and as a dentifrice. This method will remove the foulest odors from the breath. The same deposit appears on the tongue every morning and must be removed as often.

Every surgeon who has a coated tongue and wishes to be aseptic should look to this possible source of infection, for in coughing, sneezing, or even speaking, it is known that the breath takes with it particles of moisture from the mouth and throat. And every patient who is to have an operation about the mouth or throat should have his tongue cleaned and disinfected. Every fever patient should have his tongue systematically cleaned to remove just that much self-infection. And every person who wishes to be agreeable in the society of others should remove the foul coating on the tongue and with it the offensive odor of the breath.

THE SEVEN SENSES OF THE FISH.

Salt water fishes breed in such myriads and it is so difficult to follow them all the year long, that it seems impossible to lessen seriously their numbers except in the cases of salmon, shad, and lobster, which approach the land and have well-defined lines of migration. But this year the menhaden has been so scarce that the fishing steamers have been laid up, and while the menhaden itself is not a food fish, but a fish netted for its oil and waste products, yet the absence of the menhaden means a scarcity of the larger fish that follow it, like the mackerel and bluefish. So that its destruction profoundly affects the fish market.

The habits of deep-water fish are mysterious enough; their coming and going seems governed by whim until one studies the changes that occur in their food, in the temperature of the water, the state of the atmosphere, and a hundred other factors. On the approach of a storm sea birds are apt to come to land; the same premonitions are felt by the fishes, only they reverse the matter and for safety retire into deep water, where they are in less danger of being stunned or blinded by the surf. The senses of fish are the same as ours; sight, hearing, touch, smell, and taste, varying greatly in fish of different kind, and surpassing our senses in one case or falling below our standard in another. Mr. Matthias

Dunn believes that fish have two more senses than we, namely, an electrical and a magnetic sense, which reside in the skin. A large number of fish have minute tubes running in one or several lines the length of their sides, with nerves running to them. They are sensory organs, but their office is not understood. Using analogy, Mr. Dunn has come to the conclusion that these are the organs which tell fish of a coming storm. "I find them to be of the same character as those in the electrical ray; they are electrical instruments pure and simple, inclosing the whole fish, whereby the electrical knowledge collected is thrown into the brain." The currents of electricity that forerun a storm pass through land and sea, affect the jelly in the little cells which compose these tubes and alarm the fish, bidding it haste with its feeding and get out into deep water. Fish bite the hook recklessly just before a storm, because there is no time to lose in smelling at or tasting the bait.

Not content with this sixth sense in fishes, Mr. Dunn argues that the same organs supply a seventh, the magnetic sense, the purpose of which is to direct the fish in the darkness of deep water or at night, or when, through the agitation of storms or the flowering of marine vegetation or the excessive spawning of fish, the water of the ocean becomes turbid. He cites Thomas Clark, of Truro, as authority for saying that basic rocks are intensely magnetic, and after the friction occasioned by storms the magnetic power becomes so intensified that it often affects the compass and causes shipwrecks during fogs, when the landmarks are concealed. Mr. Dunn's idea is that the homing powers of the shoals of fish that reach the coast in spring from the deep sea are to be explained by the action of this magnetism on the organs of the fish which tells them where to steer. This leads him to yet another generalization. Lord Kelvin invented a compass in which the needle floats free in a bath of alcohol. The brain of a fish floats in a clear liquid about the consistency of water. May not, asks Mr. Dunn, the brain itself, assisted by the magnetic tubes in the skin, act like a magnet floating in liquid?

These are questions that might excite the students of fish to efforts along fruitful lines. It may lead to a better knowledge of the factors in deep-sea fishing, and have very practical results by explaining where at a given moment the food-fish are likely to be, and under what conditions the fishermen may find it worth their while to put to sea.

New York Times.

RELATIVE TOXICITY OF COCAIN AND EUCAIN.*

A. H. Peck, M.D., D.D.S., Chicago.

1. The action of cocain is inconstant; one never knows whether the symptoms occasioned by like quantities of the drug, in animals or individuals, under like circumstances, will be similar or dissimilar.

2. The action of eucain is constant. The symptoms occasioned by the use of like quantities in animals under like circumstances, and so far as my experiments have gone, in different individuals also, are the same.

3. The first action of cocain on the heart is that of a depressant, and on the respiration it is that of a mild stimulant, the after-effects being, on the heart, that of a decided stimulant, and on the respiration, that of a decided depressant.

4. The first action of eucain on both the heart and respiration is that of a stimulant, the after-effects being that of a decided depressant.

5. Cocain causes death in animals by paralyzing the muscles of the respiratory apparatus, the heart's action continuing in a feeble way for a brief period after breathing ceases.

6. Eucain causes death in animals by paralyzing the muscles of the heart and of the respiratory apparatus, they ceasing to operate simultaneously.

7. Eucain in toxic doses nearly always causes nausea, and occasionally vomiting.

8. Cocain is much less nauseating, and scarcely ever causes vomiting.

9. Eucain is decidedly a diuretic, causing renal discharge in a majority of instances in which a toxic dose is used.

10. Cocain is not a diuretic to any appreciable extent, renal discharge having occurred in only one instance in connection with all my experiments.

11. The pupils of the eye, in nearly all cases of cocain poisoning, do not respond to light, and are more or less bulging from their sockets.

12. The pupils of the eyes in most cases of eucain poisoning do respond feebly to light, and rarely ever bulge from their sockets.

* Conclusions from a paper presented to the Section on Stomatology, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6th-9th, 1899.

13. The action of toxic doses of eucaïn is more like that of a paralyzing, tetanoiding, convulsion-producing agent, than it is like an anæsthetizing one, the plantar and cremasteric reflexes nearly always responding.

14. Toxic doses of cocain cause general anæthesia in connection with the other symptoms in the majority of cases.

15. True tetanus, of all striped muscles of the limbs, and Cheyne-Stokes' breathing nearly always occur with the use of cocain, but seldom does either occur when eucaïn is used.

16. Cocain is at least three times more toxic than beta eucaïn, and alpha eucaïn is as toxic as cocain.

17. Boiling does not destroy the efficacy of cocain, but it does modify it, and boiling in no degree lessens the efficacy of eucaïn.

SKULLS AND BRAINS.

Prof. Arthur Thomson, M.A., M.B., "On the Treatment and Utilization of Anthropological Data," in *The London Knowledge*, dealing with the form of skulls and brain capacity, says: "The average weight of man's brain is about 50 ounces, that of woman's about 45 ounces. This difference between the sexes is less marked in savage than in civilized races, and is apparently explained by the fact that in the higher races more attention is paid to the education of the male than the female, and consequently the brain is stimulated to increased growth.

* * * It is hardly necessary to point out that quantity is no criterion of quality, and though the brains of many distinguished men have weighed much above the average (that of Cuvier weighed 64 ounces), there are abundant examples of equally weighty brains, the possessors of which were not characterized by wits above the common herd.

"But apart from the mere size of the cranium we have to consider its shape. If a number of skulls be taken and placed on the floors so that we can look down upon them, we will at once realize that they display a great diversity of form, provided always that we are dealing with mixed groups; some are long and narrow, while others are broad and rounded. * * * For scientific purposes these differences in shape are recorded by the use of what is termed the cephalic index. * * * In practice the cephalic index is obtained by the following formula: Breadth

multiplied by 100 divided by length equals cephalic index. The results are grouped as follows: Skulls with a proportionate width of eighty or over are termed brachycephalic. This group includes, among others, some Mongolians, Burmese, American Indians and Andamanese. Skulls of which the index lies between seventy-five and eighty are mesaticephalic, and comprise Europeans, ancient Egyptians, Chinese, Japanese, Polynesians, bushmen, etc. While skulls with a proportionate width below seventy-five are dolichocephalic, and are more or less typical of Veddahs, Eskimo, Australians, African negroes, Kafirs, Zulus," etc.

PHOTOTHERAPY AND ITS POSSIBILITIES.

During the past few years there have been occasional rumors of the possibility of the light-rays being used as a therapeutic agent, especially in skin diseases. It is well known that the violet rays of the spectrum affect bacterial growth unfavorably. Some years ago, Finsen, of Copenhagen, pointed out that the scars left after an eruption of small-pox, were much less serious if the patient were protected from the action of the rays of light belonging to the violet end of the spectrum, as these produce irritation of the skin when concentrated, and in inflammatory conditions such as small-pox naturally aid in the destruction of tissue and consequently intensify the subsequent pitting.

After demonstrating that his theory was correct and that the bad effect of these rays could be eliminated, Professor Finsen experimented further with the idea of making use of the violet and related rays for therapeutic purposes. The results of his experiments were followed with great interest. Nearly two years ago Lesser, professor of venereal diseases and dermatology at the University of Berlin, in a lecture which appeared subsequently in the *International Clinics*, said that the most promising therapeutic agent against lupus vulgaris, provided it proved as successful in other hands as in those of the discoverer, was Finsen's phototherapy. Finsen's demonstrations at the Congress for tuberculosis in Paris last year did not come as a surprise, but they did succeed in convincing the most skeptical of the important therapeutic power residing in rays of light.

Finsen's assistant, Dr. Valdemar Bie, of Copenhagen, describes in the *British Medical Journal* for September 30th, 1899,

the methods and results of Finsen's treatment. The only indications for treatment are that the disease be superficial, local, and of bacterial origin. So far the light treatment has been applied to lupus vulgaris, to lupus erythematosus, and to alopecia areata. In lupus vulgaris, as the pictures of patients before and after treatment attest, the result is probably better than that secured by any other method of treatment. The application is painless and the liability to relapse is slight. In lupus erythematosus the effect is not so satisfactory and relapses are rather frequent. In alopecia areata the results have been most encouraging and seem to demonstrate, beyond all doubt, that the affection is of bacterial origin.

The method of treatment consists in concentrating on the affected parts the violet and ultra violet rays of light. The sunlight of a bright day or the light of a strong electric-arc light of 50 to 80 amperes, is employed to furnish the white light. From this all rays except those chemically most active are filtered out by means of a blue lens. A hollow glass lens filled with a proper colored blue solution, as a dilute solution of ammoniated copper sulphate, helps to cool the rays as they pass through to the skin. For the electric arc, lenses of quartz are used because they allow the violet rays to pass more readily than do those of glass. The patients are protected from the heating effect of the concentrated light by a small hollow glass disk, pressed close against the skin, through which cool water is allowed to circulate constantly. A little experience soon gives facility in managing the apparatus and the danger of accident from the concentrated rays is very slight.

Profesor Finsen's work deserves to be known, and his suggestions to be put in practice on a much wider scale than has yet been attempted.

Medical News.



THE DENTAL BRIEF.

A Journal of Dental Science, Art and Literature.

PUBLISHED MONTHLY.

WILBUR F. LITCH, M.D., D.D.S., EDITOR.

DEGENERACY IN GREAT BRITAIN.

Elsewhere in this issue of the BRIEF is given an abstract of the more salient features of a paper recently read by Mr. James Cantlie, an English surgeon, before the Section of State Medicine of the British Medical Association, upon "The Early Decay of the Teeth in Britain."

Of the average Englishman, it has been said that when he learns of something not quite all right in his "right little, tight little island," his first instinct is to write to the *Times* about it; his second to appoint a committee to investigate it.

During the past few months there has been a good deal of "writing to the *Times*" relative to the prevalence and ravages of dental caries among British school children, as revealed by the periodical inspection of their teeth which has recently been officially instituted; and, as will be seen by Mr. Cantlie's paper, the usual committee of investigation has been duly provided for.

The significance of this movement lies chiefly in the fact that it has been instituted by a body representative of the medical profession in Great Britain, and that it indicates an awakened interest in a subject to which the dental profession has devoted much research, but which physicians, as a rule, have heretofore regarded as of such minor importance as to be unworthy of their serious attention.

The basis of this changed attitude is doubtless a fuller knowledge of physiological law, and a deeper realization of the fact that all physiological forces are correlated, the impairment of one involving the impairment of all.

The average Englishman believes in health, and in the "strenuous life," which without health is impossible. It is a racial instinct. Thus, having at last learned that sound teeth are necessary to that sound digestion, which he has long known is the basis of sound health, his practical common sense leads him at once to seek for the cause of early decay of the teeth and for its cure.

This, however, is not the only evidence of degeneracy among the people of Great Britain, to which attention has recently been directed. According to the testimony of Brigade Surgeon Douglas, recently published in the *London Times*, it is becoming increasingly difficult to obtain for the British army recruits up to the requisite physical standard for effective military service. A very large percentage of those presenting themselves are deficient in size, weight and stamina; and the average of the rank and file of the British army of to-day, while still superior in physique to the forces of Continental Europe, is inferior to the present fighting force of the United States army, and is also inferior to the British army which fought under Wellington, or even to that of a generation ago.

This degeneracy is largely attributable to the abandonment of rural for suburban life, forced upon large numbers of the population of Great Britain by the depression in her agricultural interests caused by the introduction of untaxed foreign food stuffs into her markets at prices with which British farmers have been utterly unable to compete.

England has sacrificed her agricultural to her manufacturing interests. Millions of the sturdy yeomen who once ploughed her fruitful fields, and drew health and vigor from her bounteous harvests, have become workers in shop and mill, forge and mine, and are with their descendants degenerate as the result of unhealthful toil amid unsanitary surroundings, scanty or improper food and polluted air.

This is a question of vital importance to England, and especially at this critical moment in her history when the cards are

dealt and the play opened upon a game whose stake may be a world empire. At such a time England cannot look with complacency upon a condition of things which affects in the least degree the fighting force of those who may be called upon to stand the storm and stress of conflict in defence not only of the Empire, but of England's own inviolate shore.

Purely military considerations are, of course, not the only ones which have aroused interest in the special form of degeneracy which Mr. Cantlie's committee is to investigate. It has a basis, too, in the humanitarianism of the time, and is but one of many movements for the establishment of saner standards of living for the masses of civilized communities, and for providing for them more wholesome food and drink and purer air, homes with more hygienic surroundings, work less exhausting, recreation less brutalizing. In the furtherance of these and kindred aims, the committee will doubtless find the chief remedial agencies for the cure of the special morbid conditions upon which they are to report.

As a factor in the causation of early decay of the teeth, Mr. Cantlie attaches much importance to the abandonment by mothers of their maternal duties, and the feeding of infants upon artificial foods, but imperfectly representing the nutrient qualities of the infant's natural pabulum, wholesome, human milk. The unfortunate and discouraging feature of the case is that in a majority of instances the feeding bottle is made necessary through the inability of degenerate mothers to furnish milk of a wholesome quality.

For this and many other cogent reasons it would really seem that Mr. Cantlie's committee would do well to broaden the scope of their inquiry, and seek for the causes of race deterioration in its broader phases; as in so doing they cannot fail to make their analysis inclusive of dental degeneracy as well, which is not by any means an isolated phenomenon, all degeneracies being indissolubly conjoined in an ever-circling chain of cause and effect.

The task assigned to the committee is a formidable one. It is not to be expected that they will evolve new principles of physiological law, or discover a sovereign panacea for dental ills. But though their investigations should add little or nothing to our existing knowledge of the causation and cure of dental disorders, their labors will not have been in vain if they do no more than direct public attention to a subject heretofore too much neglected, and thus secure that which is always an essential preliminary to the cure of any evil—a recognition of the fact that it exists.

ANNOUNCEMENTS.

The thirty-fourth annual meeting of the Ohio State Dental Society will convene on Tuesday, December 5th, 1899, at 10 o'clock, A. M., at the Great Southern Hotel, Columbus, Ohio. Sessions: December 5th, 6th and 7th, 1899. A cordial invitation is extended to the profession at large.

Program.—Tuesday, December 5th, 10 A. M.

Order of Business.—Roll Call. Reading of Minutes. Reports of Committees. Miscellaneous Business. Reading of Papers and Discussions.

Essays.—President's Address, L. P. Bethel, Kent.

Tuesday, 2 P. M.—G. S. Junkerman, Cincinnati—A Hydro Mechanical Theory of Sensitive Dentin.

Discussion opened by F. S. Maxwell, Steubenville; C. T. Whinery, Toledo.

Interesting Cases in Practice.—J. K. Douglas, Sandusky—Third Superior Molar in Antrum of Highmore.

H. C. Matlack, Cincinnati—Antral Disease in a Child.

L. E. Custer, Dayton—(Subject to be announced).

G. D. Edgar, Defiance—Inverted Third Molar.

General Discussion.—T. A. Long, Philadelphia, Pa.—Japanese Dental Art, Ancient and Modern. Illustrated by Specimens.

General Discussion.

5 P. M.—Election of Officers.

Tuesday, 7.30 P. M.

W. A. Price, Cleveland—Lecture and Demonstration of Roentgen Rays as Applied to Dentistry. (Also lantern views.)

Discussion opened by L. E. Custer, Dayton; J. S. Cassiday, Covington, Ky.

Wednesday, December 6th, 9 A. M.

CLINICS—OPERATIVE.

1. E. D. Scheble, Toledo—Gold Filling by Hand Pressure.
2. C. I. Keely, Hamilton—Tin and Gold Filling.
3. J. R. Owens, Cleveland—Contour Filling with Woodward Matrix.
4. G. W. Woodbury, Cleveland—Immediate Pulp Removal.
5. D. H. Sullivan, Lima—The Preparation of Sensitive Teeth for Filling, by the use of Nitrous Oxid and Chloroform.
6. W. H. Hayden, Youngstown—Electric Water Heater and Gold Plating.

SURGICAL.

7. J. R. Bell, Cleveland—New Instruments for Removing Soft Tissue from Partially Erupted Teeth.

PROSTHODONTIA.

8. W. T. Jackman, Cleveland—Putting on and Baking of Body and Enamel Continuous Gum Plate. (Using Electric Furnace.)
9. H. A. Moyer, Kendallville, Ind.—Something Novel in Shot Swaging.
10. W. O. Hulick, Cincinnati—Crown and Bridge-Work.
11. S. M. Weaver, Cleveland—Novelties in Crown and Bridge-Work.

ORTHODONTIA.

12. V. E. Barnes, Cleveland—Impressions and Casts for Use in Orthodontia.

METALLURGY.

13. A. A. Kumler, Cincinnati—Refining and Rolling Gold.
- Wednesday, 2 P. M.—H. J. Custer, Columbus—Reflexes Between the Teeth and Eye and Ear.
- Discussion opened by Grant Molyneaux, Cincinnati; O. E. McConkey, Urbana.

M. H. Fletcher, Cincinnati—Alkaline Saliva.

Discussion opened by J. R. Callahan, Cincinnati; S. B. Dewey, Cleveland.

H. F. Harvey, Cleveland—A New Form of Clamp.

Voluntary Essays.

Wednesday Evening—Open.

Thursday, December 7th, 9 A. M.—Installation of Officers.

CLINICS—9.30 A. M.—OPERATIVE

1. L. L. Barber, Toledo—Gold and Platinum Filling with Electric Mallet.

2. C. R. Butler, Cleveland—Gold Lined Tin Filling.

3. W. T. McClean, Cincinnati—Difficult Filling by Use of Automatic Plugger.

4. Otto Arnold, Columbus—Pressure Anæsthesia for Immediate Pulp Removal.

5. Hamlin Barnes, Wellsville—Dr. Fell's Method of Forced Respiration.

6. Ira Brown, Cleveland—Phagedenic Pericementitis.

7. David Stern, Cincinnati—Devitalizing and Bleaching with Electric Current.

SURGICAL.

8. H. C. Matlack, Cincinnati—Opening Antrum with Surgical Engine.

PROSTHODONTIA.

9. W. T. Born, Kenton—Attachment of Clasps for Plate Dentures.

10. J. B. Snyder, Bryan—Impressions.

11. S. D. Ruggles, Portsmouth—The Use of Pure Gold Wire in Crown Work.

12. J. F. Stephan, Cleveland—Preparing Roots and Fitting Bands for Crowns.

13. L. H. McDonald, Norwalk—One Way of Fastening Bridges.

ORTHODONTIA.

14. W. S. Locke, Cincinnati—The Making of Regulating Appliances.

METALLURGY.

15. E. B. Lodge, Cleveland—Repairing and Tempering Instruments from Old Excavators.

THE NATIONAL SCHOOL OF DENTAL TECHNIQS.

The meeting of the National School of Dental Technics will be held in Philadelphia at the Continental Hotel, beginning 10 A. M., Wednesday, December 27th, and continuing three days.

Every teacher in the profession should be present. A most excellent program will be presented, consisting of a lecture and demonstration by Prof. J. Liberty Tadd, and papers by Drs. Faneuil D. Weiser, C. S. Case, D. A. Gritman, A. E. Webster, W. H. Whitslar, M. H. Cryer, H. J. Goslee, Otto Arnold, I. N. Broomell, G. V. Black, A. H. Thompson, James Truman and others.

Geo. H. Wilson, Secretary.

The Transportation Committee of the National Dental Association for the International Dental Congress in Paris next year, are perfecting arrangements for tours and special rates for delegates and their families, and in all probability they will be completed so as to appear in the January issue of the Journals.

W. E. Griswold, Secretary, Denver, Colo.

The thirty-fourth annual meeting of the Ohio State Dental Society will be held at the Grand Southern Hotel, Columbus, Ohio, December 5th, 6th and 7th, 1899. A good program consisting of essays and clinics has been prepared. A cordial invitation is extended to the profession at large.

Henry Barnes, Chairman Executive Committee.

RECENT PATENTS OF INTEREST TO DENTISTS.

635244, Dental-tool guard, John A. Gholson, Clarksville, Tenn.

635135, Tooth-powder box, Irad Hawley, East Orange, N. J.

634906, Case or cover for heads of tooth-brushes, Henry G. McCoskey, Galena, Ill.

636027, Disinfecting appliance, Max Elb, Dresden, Germany.

635773, Means for securing tooth-crowns to roots, Harry F. Hamilton, Boston, Mass.

635893, Dental plugger, Walter A. Inglehart, Philadelphia, Pa.

636284, Porcelain tooth-crown, James R. Osborne, Shelby, N. C.

636285, Veterinary dental forceps, Benjamin F. Pinson, assignor of one-half to T. J. Hughes, Blackwell, Oklahoma Territory.

636359, Dental root-drill, Charles P. Schultz, Pawtucket, R. I.

636568, Tooth-crown, Lewis S. Seeley, New York, N. Y.

636571, Dental disk-holder, Gideon Sibley, Philadelphia, Pa.

636462, Dental bib, Kossuth W. Small, Richmond, Maine.

636367, Dental cement, Albert P. Tschirner, St. Louis, Mo.

636476, Dental handpiece, Frederick E. Webster, Clarendon, Arkansas.

Questions and Answers.*

Question 65. What is the probable life of a porcelain inlay as compared with a gold filling in any given situation?

The durability of a porcelain inlay as compared to a gold filling can only be determined by observation of fillings similarly placed and subject to like conditions. The actual life and tooth saving properties of a porcelain inlay are almost entirely dependent upon the cement used in setting the piece. Throwing aside the possibility of poor work, a factor equally potent in regard to the permanency of all operations into the mouth, the power of the cement to withstand the action of the secretions, must determine the result of this class of work. Gold, in use for so many years, has proven to be the most reliable of all filling materials, and still maintains that distinction to a pronounced degree, but to obtain certain desired results, sacrifices may be made in other directions; so summing up the gains, a filling which is reasonably durable can justifiably be used for esthetic reasons, this being the strongest argument in favor of porcelain work. The oxyphosphates are among the best tooth-savers in use. While no cement has been found that will resist indefinitely

* Under this head the editor solicits correspondence both of a practical and theoretical nature. These may be in the form of queries or answers, or the brief report of some special experience of general interest. In all instances the name of the writer must accompany the communication, and will be published unless otherwise directed.

Edited by I. Norman Broomell, D.D.S., 1420 Chestnut St., Phila.

the action of the saliva, the protection afforded by the porcelain greatly prolongs the usefulness of the cement, thus making a combination far superior to a simple cement filling. With these possibilities it can only be a matter of guesswork as to the probable life of a porcelain inlay as compared to a gold filling in a given situation.

J. Howard Gaskill, Philadelphia.

Question 66. What is the best method to ascertain the location and direction of pulp canals in molars and bicusps, a thorough knowledge of which appears to be the only means of avoiding cutting through the side of the root or through the point of bifurcation? What is the best plan to pursue when the latter complication does occur?

J. S. Thomas, Savannah, Tenn.

While the internal anatomy of the complex teeth presents a common condition, there are many variations in the location of the entrances to, and the directions assumed by, the canals traversing the roots. While it would be a very rare occurrence to find a canal located otherwise than in the center of the root, this anatomical fact does not materially assist in locating the same, owing to the many marked flexions of the roots themselves. The effort upon the part of the operator should be primarily to find the entrance to the canal, which can be best accomplished by both the sense of sight and of touch; this once accomplished, the canals should be followed and cleansed by flexible instruments, which if carefully manipulated will follow the opening to its extremity. The sense of touch coupled with a fair understanding of the conditions which should normally be present, answers the first part of your question, while the use of flexible instruments will in a great measure prevent the disastrous complication referred to.

As to the best plan to pursue when the root has been punctured, much depends on the extent of the attending injury. If it is not sufficient to cause hemorrhage, the opening may be sealed with gutta-percha, being careful not to force the same through the puncture; if the wound is extensive with profuse hemorrhage, it would indicate a severe laceration of the peridental membrane, which in most instances means the loss of the tooth.—EDITOR.

TO THE EDITOR OF "QUESTIONS AND ANSWERS:"

Would you give me your personal opinion in the following case? A gentleman who comes to me regularly for dental treatment is much annoyed by the discoloration of his teeth when

filled with amalgam, and this effect is so pronounced that I have tried various methods to overcome it. I have used alloys of nearly all the different manufacturers, and have tried many methods in their preparation for introduction into the cavity, but the same troublesome results always follow in a very short time. After the removal of these fillings from the teeth, the stain appears to have penetrated the dentin for considerable depth, and in some instances the enamel seems to be effected by it. While the teeth themselves appear to rebel in this way, there is a decided disposition on the part of the patient to abhor the use of amalgam.

W. L. G., Toronto, Canada.

It appears to be the generally accepted opinion that the use of amalgam in the mouths of certain individuals is always inadvisable, in some cases the conditions referred to being the indicator, while in others the disposition for the filling to assume a spheroidal form resulting in its partial protrusion from the cavity calls for its abandonment. The discoloration of the dentin is due to the penetration of the mercurial vapor into the tubuli and its ready oxidation there. It must be recognized that there is an excess of mercury in all amalgam fillings, and that the disposition for this to volatilize is equal under all conditions; but some teeth are more prone to take up the vapor than others, the case to which you refer having a pronounced inclination to do so. Instances have been reported in which marked symptoms of mercurial poisoning have occurred from the presence of amalgam fillings, and it may be that the patient to whom you refer is exceedingly sensitive to mercurial influences, thus accounting for his dislike for this metal.

In reply to Question 63, in which Dr. Payson asks, "Which is the strongest, a porcelain crown, or a porcelain-faced crown?" it may be said that both kinds have their special advantages, when, as you say, the bite is short. To determine in a given case which to use, the character of the occlusion, be it fixed or wandering, must be taken into consideration. If the movement of the lower jaw is directly up and down, as it usually is when the cusps of the teeth are long, the porcelain-faced crown would be the strongest. On the other hand, if the cusps of the natural teeth are short, more or less lateral movement will be present during the functional activity of the teeth, and in this case the porcelain crown would be indicated, providing the grinding of the occlusal surface has not exposed the platinum pin, thus indicating a weakened condition of the body of porcelain.

Question 67. Are there any dentists at the present time practicing implantation or experimenting in that direction? I have always been an advocate of the method, but never had any practical experience, but feel now that the time has arrived when I can take up the work. I will be very glad to be put on the track of some one doing this work, and particularly some one who has passed the experimental stage. *E. G. Vanderveer.*

Question 68. Is it generally considered that the mixing and manipulating of alloys has very much to do with their success as a filling material?

"It matters little how you mix your alloys for filling, provided certain rules are employed. The first rule is this: the more tin you have the less trituration you should give it. The more silver you have the more trituration it demands, for the reason the alloys with large proportions of tin dissolve in mercury much quicker than alloys with small proportions of tin. You should not manipulate or chop up your alloy in your cavity with your instrument. After you have once squeezed it out you want direct compression of it, hence fillings rubbed in with a burnisher are never so strong as fillings pressed in with a broad serrated point." *G. V. Black.*

In regard to the question of the methods employed to secure a correct bite (Question No. 64, November BRIEF), I send the following plan suggested several years ago by Dr. Harold Clark, of Toronto, Canada, as it has proved so satisfactory in my hands, I report it that it may benefit others. "In a full upper case, for instance, I place the trial plate and wax rim in the mouth ready for the imprint of the inferior teeth, then I simply place the tip of my forefinger at the front of the wax rim about where the lower teeth will touch, and ask the patient to close his mouth slowly. When the inferior teeth touch my finger, I make the request, 'Don't bite my finger, but bite back of it.' At once, if he has bitten forward, the jaw jumps back like a machine. As the teeth approach the wax I gradually manipulate out my finger." *J. W. Oliver.*



Practical Points.*

Cutting Cavities in Porcelain Teeth.—Undercuts in cavities in porcelain teeth are readily made with a fine or small copper wire carried in the engine, the point being wet with oil and emery.

Howard E. Roberts.

Aluminumized Gutta-percha Fillings.—

R	White gutta-percha	8	parts
	Aluminum filings	5	parts
	Oxid of zinc	1	part
	Whiting	½	part

Easily manipulated, and when firmly packed holds its position well in the cavity without bulging.

F. W. Bliss, Pacific Medical Dental Gazette.

Fitting a Band.—To obtain the best results the gingivæ should be temporarily dilated and receded before preparing the tooth to receive a band. This can be readily accomplished by twisting absorbent cotton on a waxed ligature and tying it around the tooth against the gingivæ, the day before operating.

R. J. Wenker, Dental Review.

Porcelain Inlays—The Matrix.—To obtain a model of tooth and cavity from which to make the matrix either wet the cavity or oil it, and then take an impression with red impression material. Take it out and oil it thoroughly, and then work around the little protuberance the oxyphosphate of zinc in proper consistence, letting it harden, and you have an exact duplicate of the natural tooth in oxyphosphate. Into the little cavity, which is quite clearly defined, you can burnish your matrix of platinum, and do your baking without trying it in the mouth at all. You will not get so close a fit, however, as by actually burnishing it into the tooth.

L. G. Perry, Dental Cosmos.

Remote Results of Diseased Deciduous Teeth.—M. Parinaud has shown that very slight dental lesions, especially at the age when the deciduous teeth are being lost, may be the starting point of osseous and periosteal disease of the lower border of the orbit, and of fistulas in the region of the lachrymal duct and the lower eyelid; also of periostitis of the nasal canal. Intimate relations exist between the canine tooth and the orbital and lachrymal regions.

Alph. Pickin, La Monde Dentaire.

Tonic and Antiseptic Mouth Wash.—

R	Thymol	7	grs.
	Borax	15	grs.
	Water	1 ½	oz.

David, Medical Notes.

*Compiled by Mrs. J. M. Walker, Special Reporter of Dental Proceedings, Waveland, Mississippi.

Creosoted Charcoal Points for Alveolar Abscess.—Dry out root-canals, dress with oil of cassia; insert a creosoted charcoal point and seal with chloro-percha and cement. A week later an upper lateral so treated received a large gold filling with no subsequent trouble. *E. R. Tait, Pacific Medical Dental Gazette.*

To Remove a Pin from a Root-canal.—Bur away the cement from around the pin with a fine spear-point fissure drill, being careful not to cut the metal itself. Grasp the pin with the sharp-nosed pliers used for bending the pins of artificial teeth, and twist the pin slightly to disintegrate the cement, when the pin will come away with but little effort. *R. M. Sanger, Items of Interest.*

Decalcified Dentin Left Under Fillings.—It has in large part been disorganized; it is packed with microorganisms, and infiltrated with poison; a mass of dead microorganisms is by no means inert; from their dead bodies come the most virulent poisons. It would seem to be a fruitful field of research to determine the kind of agent required to destroy the microorganisms and at the same time neutralize the poison.

C. N. Johnson, Dental Cosmos.

Practical Use of the Roentgen Ray.—The Roentgen rays may be advantageously employed in locating roots over which the gingivæ have healed, thus enabling their removal without extensive laceration of tissue. Also in ascertaining the character and direction of roots of teeth previous to attempting extraction, in order that extractive force may be applied in the right direction.

H. M. Howlett, Australian Dental Journal.

Gold and Silver Salts in the Treatment of Pyorrhea Alveolaris.—It is well known that a root discolored by silver nitrate seems less likely to take on deposits afterward. * * * I have been using gold chlorid for a couple of years in the place of silver nitrate; the latter in a deep pocket is decidedly irritating, and may cause inflammation, while with gold chlorid we get the same good effects without the irritation. After two years' use I feel justified in recommending it. *W. V. B. Ames, Ohio Dental Journal.*

Root-canal Treatment—Six Essentials to Success.—I. The rubber-dam.

2. Free, direct access.

3. Thorough cleansing, mechanically and therapeutically.

4. Getting the antiseptic through the root.

5. Perfectly filling the root immediately after getting it in aseptic condition with an antiseptic root-filling.

6. Sufficient confidence in the method used to insure thorough work, and the minutest attention to details.

F. Milton Smith, International Dental Journal.

To Give a Fine Finish to Gold.—After scratches have been removed with pumice nothing is so effective as oxid of zinc on a brush wheel. It leaves a beautiful lustrous polish.

H. H. Johnson.

To Prevent Crowding and Irregularity of the Teeth.—Institute very early a system of mouth massage, instructing the mother or nurse to rub the inside of the infant's jaws systematically, but gently, thus aiding in their development, and giving more room for the teeth.

C. L. Boyd, Dental Register.

Restoring the Enamel Surface to Porcelain.—When it has been necessary to grind the surface of a tooth to restore the polish work it over an Arkansas stone, keeping well moistened with liquid soap; finish with oxid of tin and a cork, at high speed, keeping well wetted with soap solution.

D. Genese, Ohio Dental Journal.

To Remove a Crown Without Mutilating the Band.—In case of pericementitis with a crown, which it is desirable to replace, with a sharp spear drill, lubricated with glycerin, drill through the backing at a point over the pin. Enlarge the hole slightly with a round bur, and with a wheel bur cut the pin free from the cap, when you can work the crown off without mutilating the band.

R. M. Sanger, Items of Interest.

Amalgam and Oxyphosphate—A New Combination Filling.—Heat an amalgam button and mix the cement simultaneously and immediately incorporate the amalgam with the cement mass, giving a gray mass which retains the adhesiveness of the cement, sets hard in the same time as the cement alone, and within ten minutes of its introduction can be varnished to a fine metallic lustre. The fillings wear well. Vary the proportions according to the masticating strength the filling will require. Absolute dryness is essential to success.

William Guy, Dental Record.

"Enamel Cement"—Amalgam and Oxyphosphate Fillings.—To the alloy selected add enough mercury to make a mass that will not crumble if pressed between the fingers. When thoroughly mixed, add about one-third in bulk of oxyphosphate powder, mixing all together. Place on the mixing tablet a quantity of the liquid sufficient for the powder, and incorporate the mass to a putty-like consistency; insert in cavity as expeditiously as possible, with pressure, using a matrix in proximal cavities. If of a proper consistency it will adhere to the teeth like the enamel itself, and can be trimmed to shape after two or three minutes.

C. W. Strang, International Dental Journal.

To Remove Rust Stains on Instruments.—Coat the instruments with a mixture of potassium cyanide 1 part, soft soap 1 part, prepared chalk 2 parts, water to make a paste. After removal of the paste coat with oil. *Ohio Dental Journal.*

Root-canal Filling.—In filling root-canals with pellets perforate each pellet with a small needle, to allow of the escape of the otherwise confined air in the root-canal.

Dr. Cadman, International Dental Journal.

Hygiene in the Office.—Never use a napkin or towel about the mouth except in case of freely flowing blood, as in extracting. Use paper napkins or bibulous paper. It is nicer and more economical. Your laundry may not be as clean as it should be, or as you may think. *O. B. Love, Texas Dental Journal.*

Eucaïn.—I find eucaïn acts upon the gums much quicker than cocain, in fact in using it by the hypodermic syringe for the purpose of dissecting away a thick cap of the gum, together with a portion of muscular tissue, over a half erupted wisdom tooth it has acted instantaneously and rendered the operation absolutely painless. *Charles A. Nash.*

Removing Laboratory Stains.—Dry the hands thoroughly and rub them well with oil, which, getting into all the fissures of the skin, will loosen all dirt and grit, then wash the hands twice with some good soap to remove both oil and dirt. This will leave the hands clean and prevent from chapping in winter. *F. M. Fulkerson, Dental Digest.*

A Temporary Partial Plate Made in a Few Minutes.—A patient having broken a partial plate carrying the incisors, and having an important engagement within an hour, the deficiency was supplied as follows: Molding a large piece of Gilbert's temporary stopping to the vacant space, suitable teeth were heated and pressed into place in the mouth. With powdered gum tragacanth sprinkled on the under surface of the piece it was worn with perfect comfort and security until the plate was repaired.

Dr. John Girdwood, Dental Cosmos.

Immediate Disinfection and Root-canal Filling.—Remove all debris as thoroughly as possible; inject peroxid of hydrogen, repeating until not a single bubble appears, going through fistula if one exists. Dry thoroughly, and flood canals with bichlorid of mercury. Wipe out and bathe with Sanders & Son's eucalyptol, making that the vehicle for a considerable quantity of iodoform.* Then dip fine points of gutta-percha in the solution of eucalyptol and iodoform, and fill the roots with them.

C. F. Stockwell, International Dental Journal.

* I use hydronaphthol instead of iodoform.

Dr. C. C. Linton.

Finishing Up Vulcanite.—After sandpapering use emery and pumice, mixed half and half, followed by pumice alone, finishing with whiting.

Dr. Wessels, Dental Office and Laboratory.

Cocain Solutions.—"Pond's Extract" (Hamamelis), listerin and pasteurin are all good solvents of cocain, and meet all the requirements of a clear menstruum. Preparations sixty days old seem to be as good as when first made up.

O. B. Love, Texas Dental Journal.

For Hypersensitive Shallow Cervical Cavities.—Dry the cavity and apply a mixture of equal parts deliquesced caustic soda and carbolic acid. The caustic soda must have deliquesced in the open air without the addition of water. Carefully protect the soft parts, and wash off the tooth after the application has been made.

Robert Huey, Pennsylvania Dental Journal.

Removing Teeth from Rubber Plate.—Boil the plate for a few minutes. The rubber will be found yielding and may be sprung from the teeth with a pair of pliers, avoiding the unpleasant odors arising from holding over a gas jet.

Dental Digest.

Silver Lactate in the Treatment of Pyorrhea Alveolaris.—Silver lactate (actol) is a white, inodorous, tasteless powder, soluble in water—1 in 100 destroys within five minutes all pathogenic microbes. I have used it in suppuration pockets along the sides of roots of teeth with excellent results. It does not cause pain when used up to 20 per cent.

A. W. Harlan, National Dental Association, 1899.

Vulcanite Inlays.—For occlusal surfaces inlays of gray or white vulcanizable rubber are readily made at but little cost, the appearance of the finished work being excellent. The cavity is prepared without undercuts, swabbed with vaseline, and an impression taken with moldable wax. White or gray rubber is packed into the plaster mold and the case vulcanized. Finish up well, polish and cement to place. Gold or platinum foil may be used as a matrix, thus insuring a perfect fit.

Translated for Dental Digest, by Dr. B. J. Cigrand.

Elevating an Impacted Third Molar.—A vulcanite cap was fitted to cover two molars and the second bicuspid, carrying a gold arm bent so as to project over the tooth to be lifted. The gum was cut away on both sides of the buried tooth sufficiently to expose enough of the lingual and buccal sides to drill holes in which were inserted the two bent ends of a gold wire staple. A piece of rubber tubing connecting the staple and projecting arm raised the tooth sufficiently in ten days to permit its extraction, relieving a severe otalgia, from which the patient had suffered for weeks.

J. W. Foreman, Ohio Dental Journal.

Miscellany.

An Operation on the Czar.—It is reported that the Czar's skull was trephined at Darmstads on October 14th in the hope of relieving certain cerebral symptoms from which he has been suffering. His troubles dates from an assault which was made upon him several years ago when traveling in Japan. It is asserted that the operation was successful, though it is not possible to say what the ultimate benefit will be.

Medical Record.

Thick and Thin Lips.—Dr. A. Bloch, the French anthropologist, attacks the theory that thick lips denote sensuality, while thin and delicate lips denote spirituality, firmness and elevated character. The scientist considers that the shape, size and color of the lips are purely race characteristics, and that in the hybrid peoples of Europe and America, where there has been such an intermingling of races, a child may inherit from not very remote ancestors lip-forms that completely belie the actual character of the child, as indicated by the lip-theory. Dr. Bloch considers that really thick lips in the white races are always anomalies or freaks of nature.

Medical News.

Bullet in Temporal Bone.—Burnett reports the case of a man, 53 years old, who was wounded in the right temple during the Civil War, supposedly by a piece of shell. The appearance was that of a surface wound, and only local applications were made. The sight of the right eye had been destroyed, and for years the wound would break out occasionally and discharge a small quantity of thin pus. There was no marked tenderness, but a sense of discomfort and heaviness developing, with the lapse of time, into a positive pain on any considerable physical exertion. When the man came under observation enucleation of the atrophied right eye was determined upon, in the hope of finding the source of the occasional discharge. Such search revealed nothing, so that the fistulous opening from the old wound was enlarged and a small quantity of necrosed bone removed. Relief was only temporary, and a further operation was made eighteen months later, laying open the fistula for $2\frac{1}{2}$ inches over the frontal bone, and cureting the surface of the bone. Finally, five years later a most thorough operation was performed, disclosing a pocket of necrosed bone, and, accidentally, evidence of the passage of a bullet, in the presence of a shining point of lead. The bullet was finally found imbedded in the temporal bone, and was extracted by exceedingly delicate manipulations with the Schwartz chisels. Recovery was prompt, no complication arising during the whole course of healing.—*Jour. Amer. Med. Association.*

The Junior Limit of Dentistry.—A Brooklyn dentist, Dr. J. C. Mapp, reports the extraction of two lower incisors from a baby two months old, the teeth having been born with the child. It became manifest that the precocious teeth would be an inconvenience to the child, and possibly to the mother in the matter of nutrition, and there was nothing to do but to extract them. This is considered to be the junior limit to dental industry.

Philadelphia Medical Journal.

Disinfection of the Mouth.—C. Roese announces that numerous—about 264—tests with various disinfectants for the mouth have convinced him that 50 per cent. alcohol is not only powerfully bactericidal—as others have established—but that it has a specific healing effect on the diseased mucous membrane of the mouth, producing an arterial fluxion, under the influence of which the venous stasis of the diseased gums disappears and they return gradually to normal. It is impossible to rinse the mouth effectively with it on account of the smarting of the roof and sides of the mouth, but the gums are less sensitive, and his method of applying it is to have the tooth-brush dipped in the alcohol. He urges chemists to devise some preparation for a tooth cream combined of alcohol, precipitated chalk and an appropriate antiseptic.

Muench. Med. Woch.

Esophageal Obstruction.—Rosenheim records several cases which were difficult of diagnosis, and in which examination by the esophagoscope did not offer any great assistance. The first case occurred in a man 62 years old, without any previous history of illness; about nine months before he was first seen he had begun to complain of difficulty in swallowing, which constantly increased. He had emaciated very greatly, and the diagnosis was thought to be carcinoma of the esophagus. The examination with the esophagoscope gave no aid; nothing was seen but a paleness of the mucous membrane at the upper portion of the stricture; the actual opening into the stricture was not visible. His death occurred soon after, and the trouble was found to be pulsion diverticulum. The course of the case, death occurring within a year after the first symptoms, is unusually rapid. The second case was in a man 58 years of age, who complained that his food was arrested at the upper portion of his esophagus. He had been repeatedly examined elsewhere, and was told that he had cancer. The sound was arrested at the upper entrance to the esophagus; examination with the esophagoscope showed roset-like folds, covered with bright red, moist, shining mucous membrane. There was no ulceration, and no bleeding. Rosenheim diagnosed the case as one of spasm, and since other causes, especially hysteria, were absent, he is inclined to attribute it to the man's gouty diathesis.—*Deutsche Medicinische Wochenschrift.*

Age and Sleep.—Tesla says that negroes live to an advanced age because they sleep so much. He believes that a man has just so many hours to be awake, and that the more of them he uses up in a day the shorter his life will be. A man might live to be two hundred if he could sleep most of the time. The proper way to economize time, therefore, is to sleep whenever there is nothing better to do.

Medical News.

A Large Drug Store.—The pharmacy of K. I. Ferrin, at Moscow, Russia, is thought to be the largest in the world. Two hundred and ninety-three men are employed in the wholesale and retail departments. As many as twelve hundred prescriptions are put up in one day. If poisonous drugs are used in putting up a prescription, the checking of weights is done by a weigher specially employed for that purpose.

The Medical Age.

The Treatment of Furunculosis.—Turner (*Therapeutic Gazette*, March 15th, 1899) states that Brocq, of Paris, has tried yeast in the treatment of furunculosis, and has found it most efficacious. This treatment had already been mentioned by Follin, Gingeot and Debouzy. Brocq began trying it in 1894, and has used it on about 50 patients suffering from diverse complaints, such as carbuncles, boils and infectious or inflammatory diseases of the skin. According to Turner, Brocq himself has long been subject to periodic attacks of carbuncle, occurring every 4 or 5 months. Other drugs failing to give relief he tried yeast, and as a result the pains diminished rapidly after the third day, all edema and inflammation being checked in their progress, and in some cases suppuration being prevented. Brocq has described several other cases in which surprising results were obtained most rapidly, and there was no recurrence of the disorder. He uses fresh beer yeast. When this substance is bought from the Paris brewers, it seems to be a sort of light chestnut colored cream, and is uniform in appearance; but on being allowed to stand, three distinct layers are formed. These should be well mixed together, and a heaping teaspoonful taken at each meal in a glass of water or beer. Baker's yeast can be also ordered, but it is not so efficacious. A piece about as large as a small hazlenut may be mixed with honey, and taken thrice daily at each meal. The full dose is on average 3 teaspoonfuls daily, but it may be increased to 9 or 10 in some cases. The administration of the yeast may cause indigestion, and in rare cases diarrhoea. These symptoms are not very tenacious, and by using this medicament discreetly, no untoward results need be expected. Brocq has not found it necessary to use complicated external applications. As to the yeast, it should be quite fresh and changed every day in summer and every two days in winter.—*Phila. Med. Jour.*

Macroglossia is a very rare condition. J. J. Pratt (*Indian Medical Gazette*, January, 1899) reports a case in a boy $3\frac{1}{2}$ years old. The tongue protruded about an inch and a half between the teeth, the mouth was constantly open, saliva dribbling, and the patient was unable to masticate food and spoke and drank with difficulty. The tongue had become inflamed 8 months before, and had gradually enlarged. Under chloroform anæsthesia the tongue was drawn out, transfixed by ligatures, which were crossed and tightened, a round incision was made through the whole thickness of the organ behind the teeth marks, and the prolapsed portion removed. The patient made a rapid recovery, and on leaving the hospital was able to eat, drink and speak without difficulty.

Philadelphia Medical Journal.

Cataract Extraction in a Lioness.—Professor Gustavo Piseni, of the University of Perugia, has lately had a thrilling experience in extracting a cataract from a powerful lioness about three years old. The animal was placed in a suitable cage in the middle of the menagerie, and the first difficulty was the administration of an anæsthetic. The intervals between the bars of the cage were filled up with cotton wool, and a large packet of gauze, impregnated with chloroform, was placed in the cage, the door of which was then closed with a shutter. In about a quarter of an hour a reconnoissance was cautiously made, and the illustrious patient was seen lying stretched out, apparently in a condition of deep coma. She was then dragged out of the cage, bound and gagged. She was next placed on a table, but before the operation could be begun she suddenly awoke, and struggled violently, rolling on to the floor, where the medical men, "with admirable coolness, but not without intense emotion, which might easily be seen in their countenances," held her down, while the animal's head was wrapped in a towel steeped in sulphuric ether. The lioness, however, managed to free herself from the gag and partly from her bonds, and gave a roar which made the majority of the spectators beat a hasty retreat. But the ether overcame her, and Professor Piseni, with great pluck, dragged her into the cage again, where the anæsthetic *coup de grâce* was given by means of another packet of gauze steeped in chloroform. The beast's head was pulled out through the door of the cage and securely held in position. Professor Piseni then operated with brilliant success. We have no doubt that the Professor had a more "serious time" than Artemus Ward had in getting into the uniform of the days of his youth, and we congratulate him heartily on having escaped a counter operation by his formidable patient. A curious feature of the scene was the excitement produced among the other animals—zebras, bison, leopards, wolves, hyenas, monkeys, etc.—in the menagerie, who all inhaled some portion of the anæsthetics with which the air was saturated.

British Medical Journal.

Xeroform.—S. C. G. Watkins is greatly in favor of xeroform as a substitute for iodoform. In general practice he finds that the remedy combines all the advantages of iodoform without any of the disadvantages of the latter. In dentistry the author usually adopts the following process with excellent results. The canal is well cleaned and syringed out with an antiseptic. Xeroform is then injected, in combination with an antiseptic, and the tooth sealed with wadding and sandarac, usually after about ten days. This treatment has given great satisfaction in numerous cases, and has rendered a second treatment unnecessary. For lesions, bruises and eczema of the skin, the author recommends washing of the affected parts with borolytol and dusting on xeroform powder. *Zahn. Rund.*

Germicidal Properties of Blood-serum.—F. W. White, in the *Boston Medical and Surgical Journal*, of February 23d, 1899, gives a report of a series of experiments upon the germicidal properties of human blood-serum, together with a review of the literature up to this time. He summarizes his conclusions as follows:

1. Human blood-serum differs greatly in its germicidal action upon various kinds of bacteria.
2. Experiments indicate that normal human blood-serum is not actively germicidal for the staphylococcus pyogenes aureus or the streptococcus pyogenes.
3. Human blood-serum does not lose its germicidal power for typhoid and colon bacilli, even in the late stages of chronic wasting disease.
4. Human blood-serum in fatal disease occasionally loses part of its germicidal power for the colon bacilli shortly before death, but more frequently retains the germicidal power for this bacillus for several hours after death.
5. A weakening of germicidal power of the blood-serum shortly before death undoubtedly favors an agonal invasion of the body by the colon bacillus.

The test-objects employed were anthrax and typhoid cultures, stools from typhoid cases, membrane from diphtheria cases, and sputum from cases of pulmonary tuberculosis. Anthrax was employed solely on account of its high resistance, and not because of its common occurrence in habitations. The others were employed as representatives of the materials which the public is most commonly advised to sterilize without delay.

Of all the agents tried only two, the preparation containing cresols and the 1 per cent. solution of formaldehyd, made by diluting 2.5 cc. of 40 per cent. formalin with 100 cc. of water, were uniformly successful. The carbolic powder (8) and two tar products (9 and 11) were invariably unsuccessful. Moreover, the cost of the proprietary preparations is much in excess of that of very large volumes of those agents which yield the best results. —*Boston Medical and Surgical Journal*, May 11th, 1899.

Rules for Converting Degrees Centigrade into Degrees Fahrenheit and the Reverse.—For converting F. into C. (mentally) subtract 32; to the result add 1-9 of this remainder; divide this sum by 2 as per following formula:

$$F. - 32 + \frac{1}{9} \div 2 = C.$$

$$\text{Example: } 212^{\circ} F. - 32 + 20 \div 2 = 100^{\circ} C.$$

For converting C. into F. multiply by 2, subtract 1-10, add 32, as per following formula:

$$C \times 2 - \frac{1}{10} + 32 = F.$$

$$\text{Example: } 100^{\circ} C. \times 2 - 20 \div 2 = 212^{\circ} F.$$

A. M. Whiton, M.D., Medical Record.

Influence of National Prosperity on the Marriage Rate.—Dr. Farr has described the marriage rate as the barometer of prosperity, just as the funds are the barometer of credit. So we find that the marriages of England increase as "the result of peace after war, abundance after dearth, high wages after want of employment, speculation after languid enterprise, confidence after distrust, national triumphs after national disasters." The same conclusion is borne out by the fact frequently alluded to by the registrar general in his reports, that the marriage rate varies in the same direction as the value of British exports; the average price of wheat and the amount per head of population cleared out at the banker's clearing-house. The coincidence, it should be pointed out, is one in direction, but not in degree.

Dr. Newsholme, on Vital Statistics.

A Fraudulent Druggist.—The Paris correspondent of the *Lancet* writes that the Paris Tribunal has just had to deal with the case of a druggist who falsified his pills and potions with an audacity which is happily uncommon. He had sold his business, which apparently had realized good profits. But his successor very soon saw that by selling drugs and medicines at the same prices as his predecessor he would soon be on the brink of ruin. He then discovered that the vendor of the business, while copying all prescriptions accurately into his register, in accordance with the law, gave his customers very different preparations, which, according to him, would produce the same effect as those ordered in the prescriptions, but were naturally much cheaper. At other times, when, for instance, the drug ordered had a very characteristic odor, he simply reduced the dose. He was in the habit of replacing saophen by antipyrine, glycerophosphates by ordinary phosphates, syrup of ipecacuanha by some emetic solution colored to look like the real thing, while all mineral waters sold were manufactured in the shop. In defence, he stated that some of these substitutes were made by his assistant, without his knowledge, and as for others, his customers had asked for them, so they might have less to pay. The tribunal awarded a heavy punishment, but allowed an appeal, which will come up before the court shortly.—*Phila. Med. Jour.*

Ether Drinking.—To the evils of alcohol are now added the evils of ether drinking, which has spread alarmingly in Eastern Prussia, where ether is sold in the saloons, like any liquor, four or five grams to the glass. In the town of Memel alone, it is stated, the amount thus sold last year was 8,580 liters, and in reality twice this amount was consumed, the rest brought in by smugglers. The effect is said to be four times more powerful than any equal amount of alcohol, but its continued use produces intolerable suffering and incurable lesions of liver, kidneys and heart.

Jour. de Med. de Paris.

The Removal of Gouty Tophi by Injections of Piperazin.—Giofredi (*Gazzetta degli Ospedali*, August 20th, 1899) reports a case of gout in which he successfully employed injections of piperazin to remove a uratic deposit from the tendon-sheath of the peroneus longus. The man's general condition had improved under the internal administration of piperazin, but the tophus remained unaffected. He thereupon made 10 injections into the mass, each consisting of 8 minims of distilled water and $\frac{5}{8}$ of a grain of piperazin. A little burning followed the first injection, but this was allayed by the application of ice, and in subsequent operations all pain was avoided by having the part first sprayed with ether. The complete absorption of the tophus was effected by the treatment. The author expresses the opinion that gouty joints might be as successfully treated in a similar way, if strict antiseptic precautions were used.

The Risks of Infection in Railway Cars.—An illustration of the dangers to which those are exposed who are compelled to use public conveyances, as well as of the necessity of adopting suitable precautionary and corrective measures, is furnished by a recent investigation conducted by Dr. Petri, of the Imperial Sanitary Bureau of Berlin, who found that of 91 animals inoculated with material, principally expectoration, obtained from the interior of railway carriages, nearly one-third died as a result, while of the remainder several on being killed were found to have become tuberculous. In those that had died in consequence of the inoculation, staphylococci and streptococci were the organisms principally found. Tubercle-bacilli had previously been found by another observer in the dust from railway carriages. Indiscriminate expectoration should be rigorously forbidden, particularly in public places and in public conveyances, and infraction of this rule should be adequately punished, at least by fine. While we may not hope entirely to eradicate transmissible diseases, the observance of a few sensible regulations will go far to diminish their prevalence and restrain their spread. To this end let us make and keep ourselves and our surroundings, together with the air we breathe and the water we drink, as clean, as aseptic as possible.—*Phila. Med. Jour.*

Death Under Chloroform.—Recently at Hamilton, Ont., a woman expired under chloroform, in a dentist's chair, after ten teeth had been extracted. This is the second death within a very short space of time that has occurred in the same office, under similar conditions.

J. A. M. A.

Soap Dentifrice.—Powdered hard soap, 20; glycerin q. s. to dissolve with heat. Rub down sufficient carmine and eosine with a little powdered soap, to produce a rose tint, add salicylic acid, 50 centigrammes; oil of star anise, 1 gm. When cool, a pasty mass will be obtained, which may be put up in suitable pots.

Bullet Com.

Death Under Ethyl Bromid.—In Philadelphia recently a death occurred within thirty seconds after the beginning of the administration of ethyl bromid as an anæsthetic for the extraction of a tooth. The patient was a domestic servant, twenty-two years of age. The anæsthetic was administered by a physician, who testifies that the drug was given in the usual manner, and with proper precautions. The preliminary physical examination revealed no evidences of organic disease. The verdict of the coroner's jury was "death from shock and uremia while under the influence of an anæsthetic." The tooth was extracted by a non-graduate, who was censured by the jury for practicing without a diploma.

Ether Anaesthesia Preceded by Administration of Morphia and Atropin Hypodermically.—The experience of W. C. McClelland and L. H. L. Harris with the administration of morphin and atropin hypodermically, before ether anæsthesia, in 100 cases taken as they came, rejecting only those that proved to have albuminuria, lead them to the following conclusions:

1. The patient's nervous system is quieted, being rendered more susceptible to the influence of ether.
2. The patient becomes anæsthetized in a very short time, on an average in less than four minutes; only a small quantity of ether is required to produce and to maintain the anæsthesia.
3. Salivation is the exception and practically never occurs.
4. The patient breathes tranquilly and regularly.
5. The atropin exerts its action on the heart as a stimulant, and thus the patient is less liable to shock following the operation.
6. Should the patient inadvertently come out during the operation, or just before its termination, there is no straining or tendency to vomit.
7. The patient generally emerges from the anæsthesia in a gradual and tranquil manner, and seldom complains of pain, sleeping quietly for several hours.
8. The tendency to nausea and vomiting after the operation is greatly diminished, and when present is very slight and does not cause much distress.
9. No deleterious after-effects appear to follow this method.

Ethmoid Sinus Disease.—Sattler points out the obscurity of symptoms in some cases of ethmoid sinus disease, producing persistent fistula in and about the region of the tear sac, burrowing of the contents and discharge into the maxillary sinus, etc. Among the symptoms we have occasionally neuralgia of the nasociliary and supraorbital region, edematous drooping of the upper lid and a chemosis of the conjunctiva, and lateral dislocation of the orbit. He briefly reports cases relieved by operation.

J. A. M. A.

The Metric System in Prescriptions.—Bartley advocates the more universal use of the metric system in doctor's prescriptions. Calculation of doses has been the principal deterrent, and he suggests a simple rule to render this less troublesome. It is as follows: A dram of the two-ounce mixture will contain as many grains or minims of any ingredient as there are grams or c.c. of that ingredient in the whole two ounces. By keeping this rule in mind the calculation of doses becomes easy and simple.

J. A. M. A.

The Schleich Method of Local Anaesthesia.—In discussing the methods of producing extensive local anaesthesia with Schleich's solutions, Dr. Rudolph Matas stated before the Orleans Parish Medical Society September 23d, that the injection of the solution directly into the nerve trunks by the "blocking" method gave the most satisfactory results. Such a procedure is not applicable in every case, owing to the difficulty of exposing the nerves, but in all operations of any magnitude upon the extremities, *e. g.*, amputations, resections, etc., the anaesthesia is all that could be desired.

Medical Record.

Synthesis Almost Creative.—The news that Wöhler had obtained, in 1828, out of inorganic stuffs a certain substance, urea, which occurs in nature as a distinct current product of vital activity in animals, upset current ideas. Then, later on, Liebig, in Germany, and Frankland, in this country, made several important syntheses, and in 1860 Berthelot published his epoch-making work, "Organic Chemistry Based Upon Synthesis," in which he proved that the synthesis of organic bodies must be pursued, and may be achieved, in a quite systematic way, going step by step over the whole series of organic compounds.

At the present time about 180 different acids, aromatic oils, fats, coloring matters, and so on, which are only found in nature as products of vital activity, have already been prepared in our laboratories out of inorganic matter. Some of them are already fabricated in this way for trade. Every year brings some new achievement in the same direction; so that the main interest now lies, not so much in adding a new product to the already long list of chemically prepared organic substances, as in catching the secrets of the tiny living laboratories in the vegetable and animal cells.

Prince Krapotkin, in the Nineteenth Century.

To Preserve Formaldehyde.—In view of the widely increasing use of this substance, the following suggestions are offered for its preservation. Formaldehyde is a gas, and its saturated aqueous solution is 40 per cent., in order to hold its strength it should be kept cool and at an equal temperature. Being an aqueous solution it should not be exposed to freezing temperatures. At low temperatures it becomes polymerized, causing a thickening of the liquid, due to a separation of the polymer.

Lilly's Bulletin.

Court Plaster.—Pieces of fine silk (marceline) are stretched on a frame similar to that used in embroidery, which is adjusted until the surface of the material is drawn quite firm and tight. The wrong side of the silk is then coated, by means of a soft brush, with a mixture of white gelatin, 50 gms. in warm water, 400 gms. When dry, three or four more coats are laid on of a mixture of fine isinglass, 1 kilo; in warm water, 3.5 kilos; alcohol (90 per cent.), 2 kilos; sugar, 100 gms.; glycerin, 100 gms.; salicylic acid, 5 gms. Each coat of the application must be quite dry before the next is laid on while tepid. The silk is finally coated on the other side with a mixture of tincture of benzoin, 1 part, and alcohol (90 per cent.), 3 parts. When quite dry the silk is cut up into suitable squares, and put up for sale in the customary envelopes.

Pharm. Ztg.

Hardening Plaster of Paris.—The *Pharmaceutical Era*, October 12th, points out that plaster of Paris may be caused to set more quickly if some alum be dissolved in the water used for rendering it plastic. If the gypsum is first moistened with a solution of alum, and then again burned, the resulting compound sets very quickly and becomes as hard as marble. Borax may be similarly employed. In 1877 the Prussian Government awarded three prizes for inventions submitted at its invitation of processes for hardening plaster of Paris casts. The principle consists in this, that the objects are to be treated with a solution of caustic baryta. But it has been found that no matter how deep this penetrates, the baryta is again drawn toward the surface when the water evaporates, a portion efflorescing on the outside, and only a thin layer remaining in the outer shell, where it is converted into carbonate. This at the same time stops up the pores, rendering it impossible to repeat the operation. It was later found that the whole mass of the cast might be hardened by applying to it, with a brush made of glass bristles, a hot solution of baryta. To prevent separation of the crystallized baryta at the surface, the object must be raised to a temperature of 60 to 80 degrees C. To produce good results, however, it is necessary to add to the plaster before casting certain substances with which the baryta can combine. These are silicic acid in some form, or the sulphates of zinc, magnesium, copper, iron, aluminium, etc.

Medical News.

A Rare Abnormality of the Mouth.—Dr. Griffiths, in the *British Medical Journal*, July 29th, 1899, reports the case of an infant born with the gums adherent to each other, and the cheeks to the gums posterior to the position of the future canine teeth. Only the posterior half of the tongue was developed, the stump being closely applied to a cleft in the hard palate. There was no opening of the posterior nares and no uvula. An interesting point is that the child cried loudly and naturally immediately after birth. It died in a few days from obstructed respiration.

Action of Quinin on Malarial Parasites.—Le Monaco (*Sperimentale*, 1) has been studying the action of a 1-1,500 solution of quinin on the parasites in the blood of a patient with quaternian fever, finding that they contracted and altered their shape; the pigment granules were seen in lively motion and the parasites abandoned the cells, although remaining near them. The effect of quinin is therefore to drive the parasite out of the corpuscle, and hence the best time to administer it is during the fever-free intervals, when mostly young parasites circulate in the blood.

Journal American Medical Association.

The Immunity of Arabs from Typhoid Fever.—Some time since M. Vincent reported at a meeting of the Academy of Medicine held in Paris that it was his observation that the Arabs were not one hundredth as susceptible to typhoid fever as French soldiers. In his opinion this immunity does not rest on a previous attack, nor in the individual is it gradually developed from the use of water contaminated with typhoid germs, but it is a natural immunity. The blood on examination shows no serum reaction, and has the ability to resist the invasion of typhoid fever germs. The great immunity enjoyed by the Arab is largely attributed to his general abstemious habits, and to the simple diet to which he confines himself.

Lancet.

The Laughing Plant of Arabia.—An Indian medical journal publishes a description of a curious plant which grows in Arabia and in parts of the western frontier of Hindustan. It is popularly known as "the laughing plant" on account of the effect produced by eating the seeds. "The plant is of moderate size, with bright yellow flowers, and soft velvety seed pods, each of which contains two or three seeds resembling small black beans. The natives of the district where the plant grows dry these seeds and reduce them to powder. A small dose of this powder has similar effects to those arising from the inhalation of laughing gas. It causes the soberest person to dance, shout, and laugh with the boisterous excitement of a madman, and to rush about cutting the most ridiculous capers for about an hour. At the expiration of this time exhaustion sets in, and the excited person falls asleep, to wake after several hours with no recollection whatever of his antics." *American Druggist.*

